

Newfound Land: Urban Highway Removal and Planning the Land it Uncovers

by

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*Submitted to the Department of Urban Studies and Planning
in partial fulfillment of the requirements for the degree of*

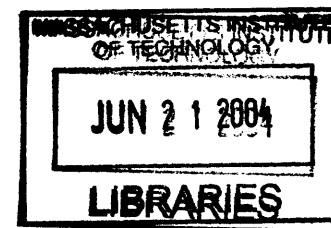
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NewfoundLand

Urban Highway Removal and Planning the Land it Uncovers

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the various methods and tools used to collect and analyze data. It highlights the need for consistent and reliable data collection processes.

3. The third part of the document provides a detailed overview of the reporting requirements and standards. It explains how the data collected should be presented and analyzed to provide meaningful insights.

For my Parents, who instilled me with the desire and love to pursue my interests, enabling me to realize that anything was possible. Their unconditional love and faith have always given me the confidence to excel in all things.

And,

To Leigh, who stood by my efforts through the good and bad with the support, humour and love that made this project successful.

Executive Summary *Newfound Land*

When the interstate highway system was routed through urban centers during the 1950's and 1960's, few thought these elevated expressways would have a serious detrimental impact on the cities they served. These interstates were designed to bring a new ease to travel between cities. Unhappiness with the system began before much of the Interstate Highway system was complete, when communities were divided, and in some cases obliterated. This pattern of urban destruction can be prominently seen across the North America and around the world.

Recently, cities have begun to undo this destruction by removing highways. Several projects, most notably the Central Artery Tunnel Project in Boston, have begun to bring awareness of what has become a new urban revitalization tool. With Boston's completion near, and San Francisco's Embarcadero standing as a successful completed example, cities around the world are beginning to acknowledge the problems elevated highways continue to create today, leading them to plan for their removal.

Despite the abundance of projects, none of the municipalities currently undertaking highway removal have used past precedent to guide their design processes. This has occurred because cities see their projects as unique and individual, when they actually belong to a larger set of urban highway removal projects. To the contrary, I argue that urban highway removal and redevelopment projects represent a new urban design typology.



The five photos on these two pages depict the removal of Boston's Central Artery, allowing light and views unseen in the last 50 years. The Bid Dig will become the defining project of the typology.



Principles that govern the successes and failures of the project designs can be derived from the careful analysis of highway removal projects over three decades. Projects and approaches reviewed in the these include:

- Urban Park Solution: Governor Tom McCall Waterfront Park, Portland Oregon (1974).
- Transportation Corridor Solution: The Embarcadero, San Francisco (1991).
- Dense Development Solution: Park East Redevelopment, Milwaukee (2003).

The case study evaluation yielded a set of principles that municipalities and project designers may consider when approaching these projects.

Principles of Design

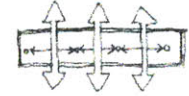
Design Concept



- Urban highway removal projects should be understood as a unique entity, or jewel, in the landscape that celebrates the reclamation of urban space.
- The site should be divided into separate districts, each of which address the immediate surrounding context.
- The project should relate to its

surroundings.

Connection



- Addressing and creating latitudinal connection is critical. Longitudinal connection must be addressed, but it will occur more naturally as a function of the site's shape.
- Connection should be the core idea when a project design is created. Connection will occur regardless of the intentions of the design team, thus it must be directed and considered.
- Connections must be addressed at the level of street, public transit, pedestrian and visual.

Edge Condition



- The parcels and buildings that form the edge of the site must be considered part of the project, even if they are beyond the site boundaries.
- Cities should regulate the edge condition to promote compatible development.

Morphology Open Space



- Open space is a critical and necessary opportunity that urban highway removal projects must capitalize on.
- Open space should not be the only

morphological feature, but a unifying element that brings the development together.

Programming



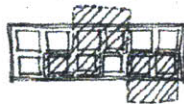
- *The unique opportunity that urban highway removal projects creates should be capitalized on through the addition of new uses that differ from the existing surrounding fabric.*
- *Program should be used to enhance the development as a fulcrum project, leveraging new uses to generate city-wide change.*

Parcelization



- *Parcels should be identified in the master plan.*
- *Parcel size should vary with consideration to the use and surroundings.*
- *Multiple contiguous parcel ownership should be considered and regulated.*

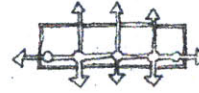
Regulation



- *Carefully crafted urban design guidelines should be created to ensure a high level of final product. Urban highway removal projects are too high-profile to leave these standards to chance.*
- *Regulation should extend beyond the*

site boundaries, providing direction for future development that will form the edge of the development.

Transportation



- *Public transit should be used as an iconic element that unifies the new development and connects it with the existing city.*
- *Transit should act as a spine, but should not dominate the space.*

Property Rights



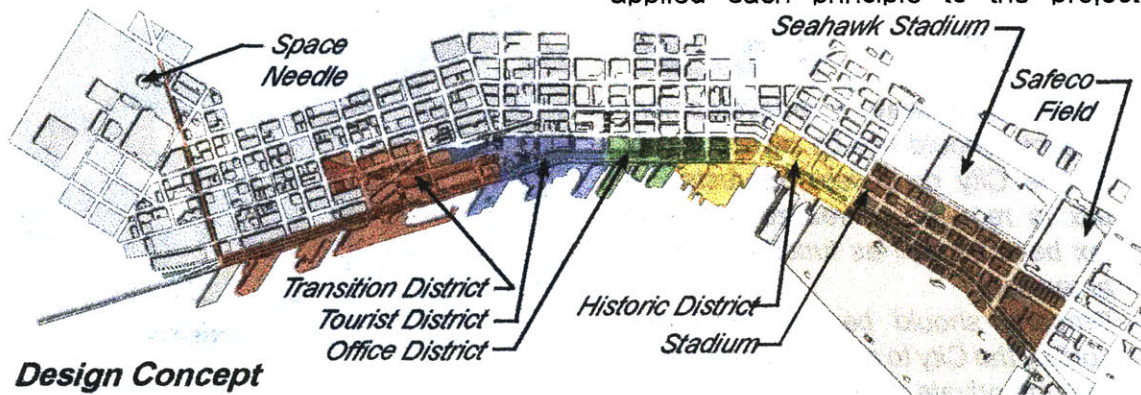
- *Urban highway redevelopment projects should not be owned solely by the City or private interests. A mix is required to realize a usable tax base as well as functional public amenities.*
- *Property should be controlled and sold by the City to achieve some goals through private development.*



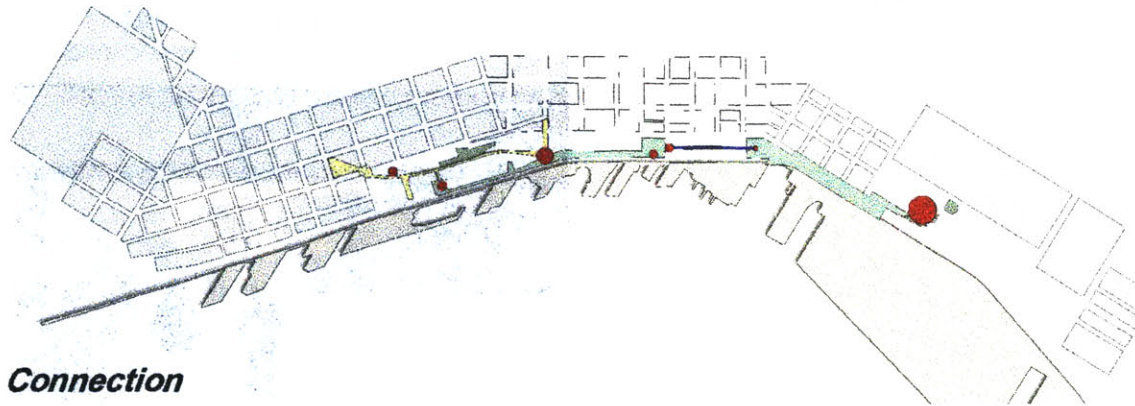
Seattle Proposal

To better understand and evaluate their use and effectiveness, the principles were applied to an existing case that is currently in the planning and design process, the removal of the Alaska Way Viaduct in Seattle, Washington. The Alaska Way Viaduct currently cuts in front of Seattle's central downtown district for three miles along the waterfront.

The application process systematically applied each principle to the project,



Design Concept



Connection

developing a design scheme. The scheme is not complete—the principles do not design, they inform the design. Thus, while all the details are not worked out, it presents a starting organization and vision to build from.

Design Concept

The design concept emphasizes the site as a new connector. The first connection occurs between Seattle's iconographic skyline elements: the Space Needle to the north and new stadia to the south. The second connection occurs between the city and waterfront. In the middle lies Pike Place market, the heart of Seattle's tourism industry. The plan divides the site into five districts as shown. Each district relates to the surroundings morphologically. The design uses a new landscaped boulevard connection from the space needle to the site in the first district. The program and spaces on the site are designed to act as a jewel, or new urban amenity in each district.

Connection

The most challenging aspect of the project is the steep topographical drop at the northern end of the site. The separation created by the drop between the city and waterfront shelf must be connected more extensively than

provided by the existing conditions. This is achieved physically through additional stairs. Visual connections are emphasized through the creation of a new elevated promenade that redefines the edge of the hill, taking advantage of the topography. Connections are also created through new structures that mediate the difference in grade and provide a vertical connection within the building.

Longitudinal connection occurs through a series of connected promenades, green spaces and view corridors. The shape and location of the project lends itself to connections in the longitudinal direction, thus they are more figurative, created by a series of open space elements that weave the length of the site.

Project connection is also achieved through the repetition of an iconic shape—the circle. In two places, circular plazas are paved with the compass rose, a symbol of Seattle. Other circular features on the site recall the icon, thus making the site common.

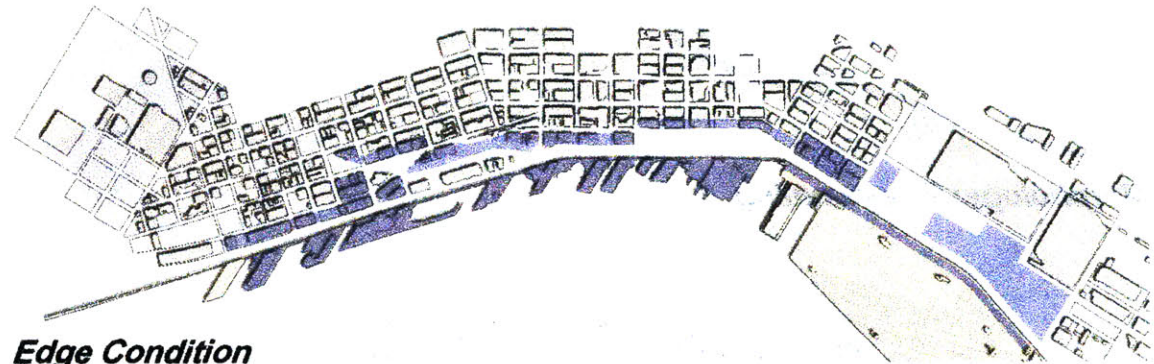
Edge Condition

As depicted by the diagram, the edge condition of this project is vast, and thus of primary importance in the planning and design process. These areas must be regulated appropriately to ensure the surroundings contribute to the

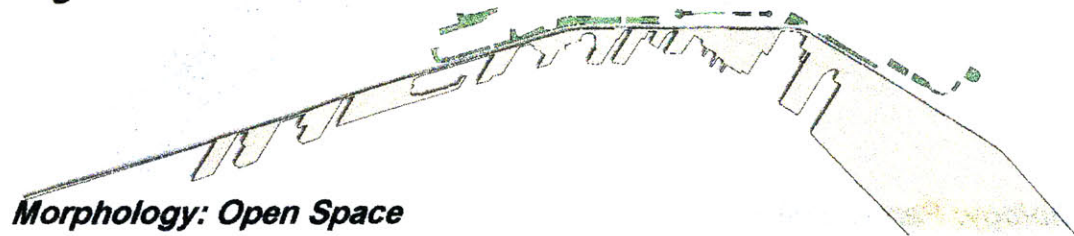
final formation of the space. In addition, the newly formed edge of the hill created by the elevated promenade is a critical opportunity that must be addressed. The existing wharves are successful in their current form, however new development may alter their use and density. The wharves must also be regulated to ensure proper growth.

Morphology Open Space

The open space plan takes advantage of the greatest opportunity presented by this project typology. While extensive, the open space network does not dominate the plan—it acts a series of



Edge Condition



Morphology: Open Space

pockets, or nodes that connect and accent each district. The main component of the scheme is the Alaska Way Greenway which passes in front of the aquarium, creating a new urban destination for the city.

Programming

In many cases, programming and building morphology compliment the surrounding areas. Several special uses are proposed to take advantage of the opportunity. An iconic concert hall and a series of incubator spaces are provided in the Office District, while a new museum is planned for the Historic

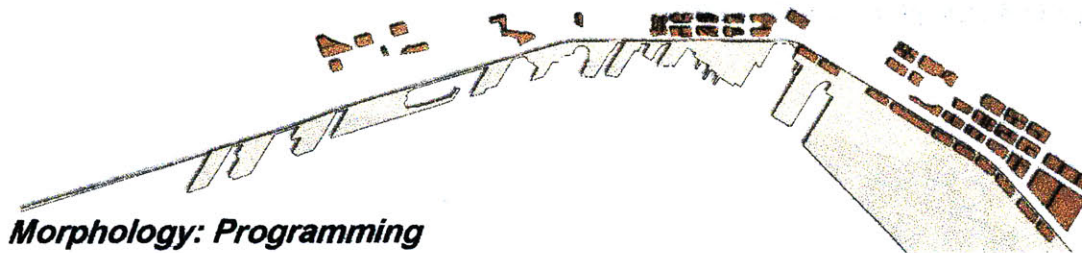
District. The Stadium District contains the greatest potential for future growth, and thus receives an expanded plan that assumes regulation of the edge condition to achieve its goals of a new loft-oriented neighborhood similar to China Basin in San Francisco.

Parcelization

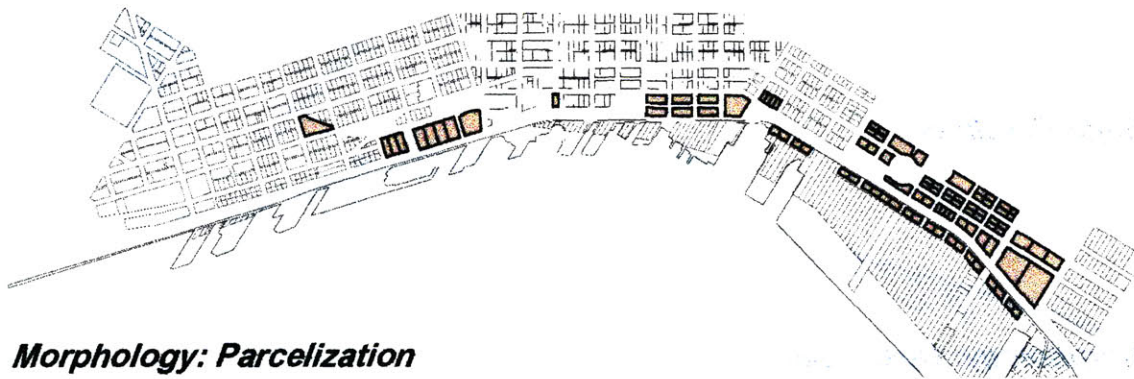
The parcelization scheme reflects the desired uses and growth patterns for the future. In many cases, the parcels are similar in size to the surroundings. Larger parcels are provided where signature programmatic elements are desired. New parcels are provided on the edge of the wharf in the southern district, creating a new boulevard, and capitalizing on the unique views of the containerized shipping facilities.

Regulation

Specific urban design guidelines should be crafted to ensure the vision of this development is realized. The new development is a jewel amongst the existing cityscape. Regulation, incentives and guidelines should reinforce this notion by encouraging a higher standard of built form. Zoning should be used in combination with urban design guidelines to dictate particular building typologies, plan growth and regulate use.



Morphology: Programming



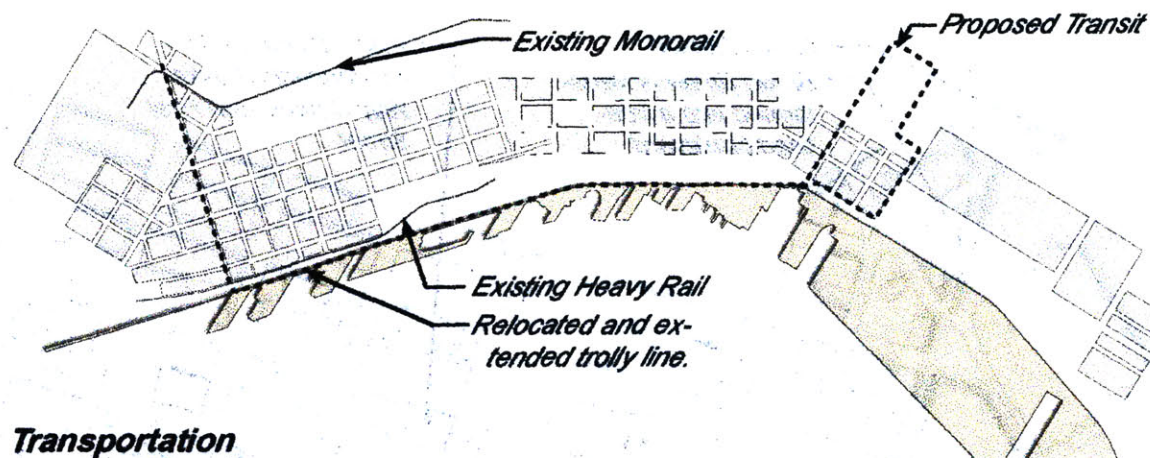
Morphology: Parcelization

Transportation

As a tool of connection, transportation is an integral part of the proposals concept of bringing Seattle's icons and tourist attractions together. By relocating and extending the existing trolley service, the center of the site is freed from the barrier of the trolley tracks, and a connection is created between the waterfront, Space Needle and stadia. The extension also allows for a connection to the existing monorail system that travels into the city center. Increased accessibility and amenities will make the site more than the tourist attraction that it is today. The new trolley location along the boardwalk will strengthen the wharf area and provide direct access for tourists, without having to cross the busy Alaska Way.

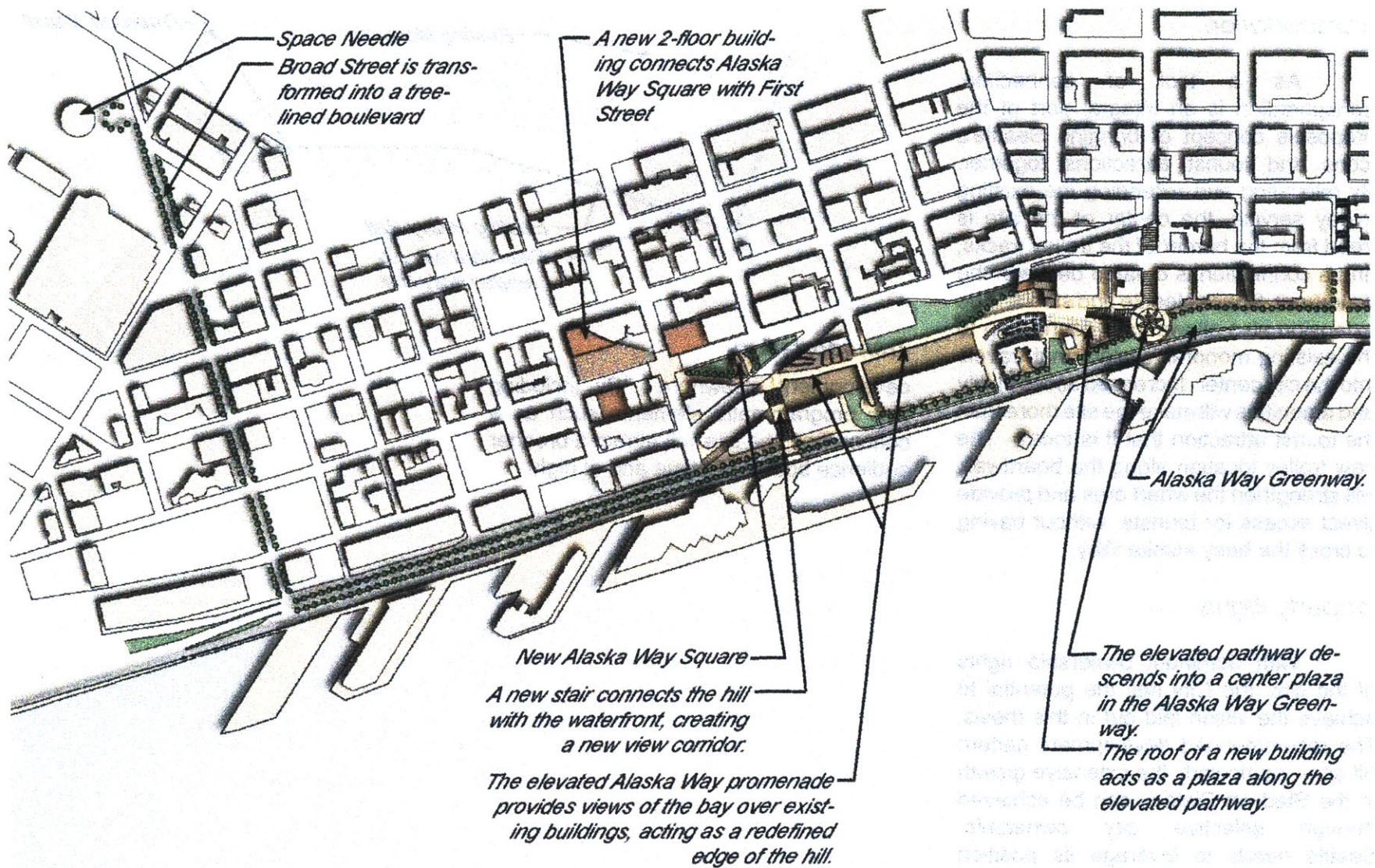
Property Rights

With dominant ownership rights of the site, the City has the potential to achieve the vision laid out in this thesis. The recommended development pattern off-site—particularly the extensive growth in the Stadium District, can be achieved through selective city ownership. Seattle needs to leverage its position of ownership to maximize its gains and encourage development beyond the site. This can be done by developing key sites that will lead to stimulation of private

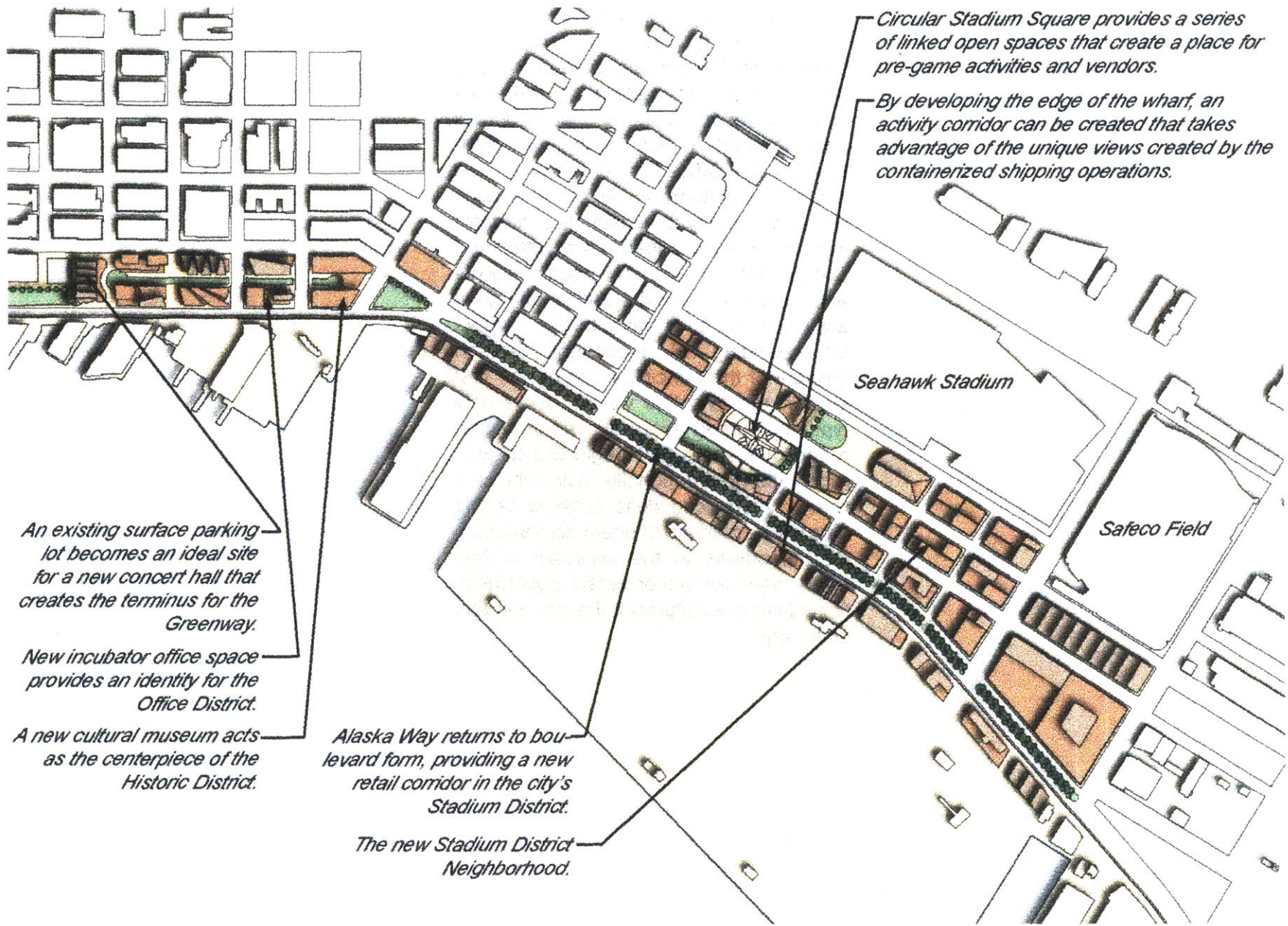


Transportation

development elsewhere. By including new programmatic elements such as a concert hall, the site will attract a broader audience both in daytime and at night.



Proposed Plan



Circular Stadium Square provides a series of linked open spaces that create a place for pre-game activities and vendors.

By developing the edge of the wharf, an activity corridor can be created that takes advantage of the unique views created by the containerized shipping operations.

An existing surface parking lot becomes an ideal site for a new concert hall that creates the terminus for the Greenway.

New incubator office space provides an identity for the Office District.

A new cultural museum acts as the centerpiece of the Historic District.

Alaska Way returns to boulevard form, providing a new retail corridor in the city's Stadium District.

The new Stadium District Neighborhood.

Seahawk Stadium

Safeco Field

This project is designed to serve the city and its residents. The uses selected for the site are chosen to send the development pattern in the right direction—encouraging a new residential neighborhood in the south, incubator space in the Office District and a concert hall on the waterfront. All of these uses will allow the city to reclaim its waterfront from the tourists, allowing it to reflect the Seattle of today—with its vibrant residents and culture, not just the traditional tourist attractions found in travel books. A strict understanding of precedent through the use of the principles can be the first step in realizing this vision. As a new typology, urban highway removal and redevelopment is just beginning to gain recognition internationally. Within the next twenty years, countless projects of this type will be planned or under construction. Seattle stands at the doorstep of this trend, with an unparalleled opportunity to reclaim the waterfront the city lost fifty years ago.

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David Masenten

*Submitted to the Department of Urban Studies and Planning
On May 20, 2004 in Partial Fulfillment of the
Requirements for the Degree of Masters in City Planning*

*Thesis Abstract
Newfound Land*

Abstract

*Urban highway removal is fast becoming one of the new archetypes of downtown revitalization both in the U.S. and internationally. The numerous projects being designed today are not indebted to the wealth of knowledge generated by previous projects because planners often believe their conditions are unique. *Newfound Land* argues that this collective group of projects forms a new typology in urban planning. Three prototype case studies of highway removal are used to illustrate approaches used on these sites: urban park, transit corridor and dense development. The analysis of the cases considers seven important urban design issues: design concept, connection, edge condition, morphology, regulation, transportation and property rights. The results of this analysis generate a core set of principles for the future design of highway removal projects.*

The principles for design are then applied to Seattle, a city currently considering highway removal and redevelopment. The proposed design drawn from the three case studies creates a development that provides an urban connector that is separate but complimentary to the surroundings. Well integrated into the city transit system, the proposal introduces a more diverse way of seeing Seattle's waterfront, and hopefully will provide substantive direction as other cities approach these very same issues.

Thesis Advisor: Dennis Frenchman

Title: Professor of The Practice of Urban Design

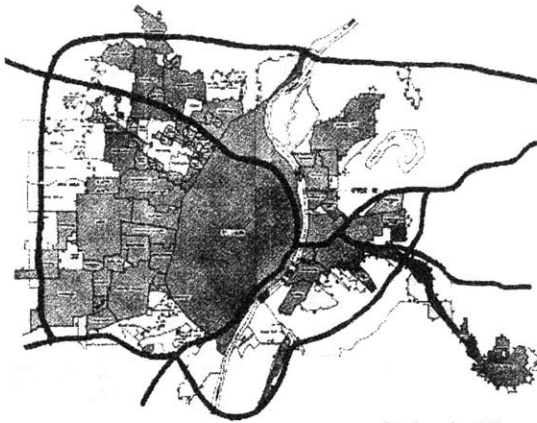
NewfoundLand

1. The first part of the text discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability, particularly in financial reporting and auditing. The text also mentions that proper record-keeping helps in identifying trends and anomalies, which can be useful for decision-making and risk management.

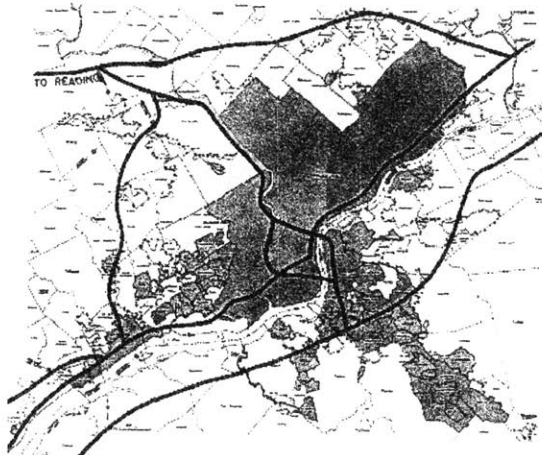
Chapter One **Realizing a new Urban Typology**

During a national planning conference in 1957, John Howard, a professor of city planning at MIT, stated that the highways built under the 1956 highway act would have more effect upon the form, growth patterns, character and structure of urban areas than all of the planning done by city planners in the previous decade¹. The statement not only proved prophetic, but understated. Today it is difficult to find a city that has not been dramatically changed by freeway construction. While some cities are more dramatic examples than others, the highway act has given growth to suburbia, changed the way Americans live, and radically altered the growth patterns in many of the nations historic urban centers. At the time of their design, it was believed that they would stimulate residential dispersal, allowing middle-class Americans to live in the suburbs. Planners also believed that inner-city highways would encourage the centralization of business, as these new roadways would provide uninterrupted connections between the urban core and outlying communities. ² What planners did not account for was the possibility that businesses would no longer find a competitive advantage in remaining within the urban

The guiding document that defined the urban routes for the federal highway program was the 'Yellow Book'. The following images are selected cities across the US and the roadways planned for them in 1956.



St. Louis, Missouri



Philadelphia, Pennsylvania

core. The birth of suburbs led to suburb to suburb commuting as businesses found cheaper, more accessible land on the outskirts. Today these highways are coming down for a multitude of reasons. Cities are provided with a virtually unprecedented opportunity to re-work their downtown cores to the advantage of reclaiming an urban population, diverse industry and a pedestrian-oriented living environment that has eluded them for years. Traditionally, urban cores have remained dense, with little opportunity to claim multiple parcels. These projects can open 30-50 acres of land without removing any buildings. With this opening comes the responsibility of rebuilding the urban core—through an intervention that provides new stimulus for existing cities.

Numerous municipalities are working towards realizing urban highway removal projects. These projects do not adequately consider precedent. This is a result of planners believing that their project is *unique*. A number of project websites reference 'case studies' which are only brief descriptions of outside projects--in many cases with little

relevance. None of these examples are ever analyzed beyond a simple programmatic understanding. Few would argue that there is a paradigm created by the collective issues considered in the projects as a group. It is this issue that drives *Newfound Land*. Each project possess a variety of different contextual and social conditions, but the underlying decisions that must be made are very similar from project to project. As more cities embark on remaking their downtown districts through roadway removal, it is imperative that the collective lessons from other projects are not just 'case studies', but become tools that can be applied. Rather than being unique these projects constitute a new archetype that is an urban typology.

This thesis will study the newfound land that has been uncovered through the action of removal, and the design methodology that responds to the following key questions:

In the typology of highway removal within urban centers, what are the design principles that govern successful

interventions? How can their principles be applied to create a starting point and analytical direction for future urban sites reclaimed from highways?

Laying Groundwork

With such a large number and variety of highway removal projects currently under way, this typology may soon become as important to understand for its affect on city design as the original highways were during the middle of the last century. Identifying principles that future designers and planners can use as they explore this typology in their own cities is imperative. Of equal importance is identifying and codifying the unique opportunities inherent in this project type. Together, these two groupings of principle will formatively guide the research.

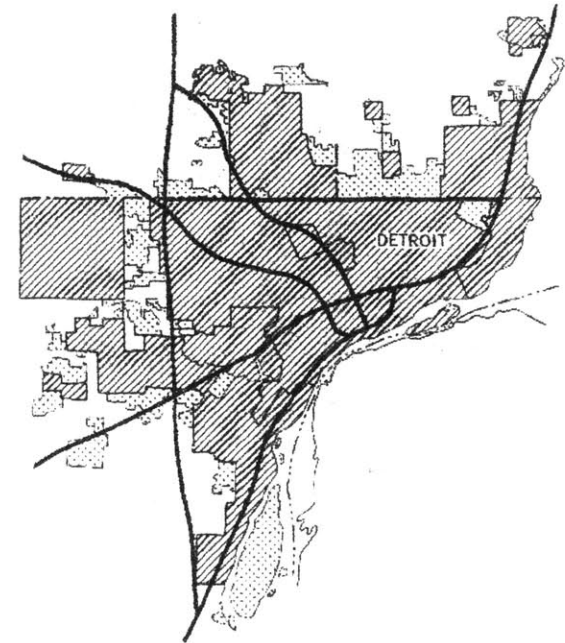
This thesis begins with a history that describes the conditions leading to highway removal. Next, principles are proposed in four steps:

1. Issues. A series of key issues are identified. These issues represent

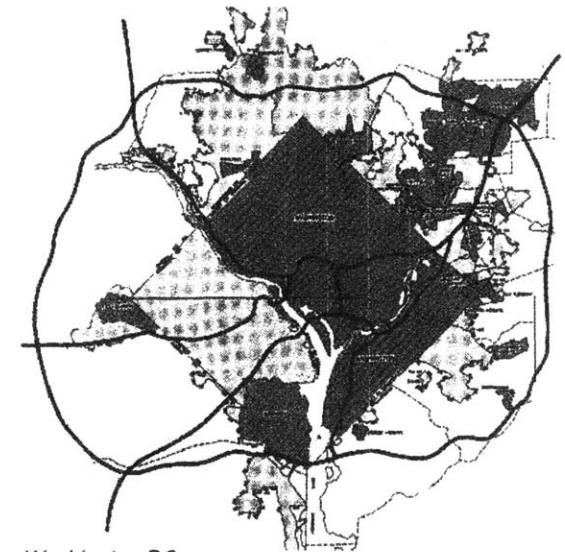
significant choices that planners encounter when approaching a long, narrow corridor in an urban condition such as one created by highway removal. Each of these items could be considered problems that planners must solve in the process of shaping space:

- Design Concept
- Connection
- Edge Condition
- Morphology
- Regulation
- Transportation
- Property Rights

This list is not exhaustive, however, the issues chosen are those of paramount concern, as they have the largest effect on the outcome. They are culled from studying the project typology, personal experience and readings such as Kevin Lynch's *The Image of the City* and Alan Jacob's various analyses of successful urban spaces. Each issue will be identified and explained in chapter three. These



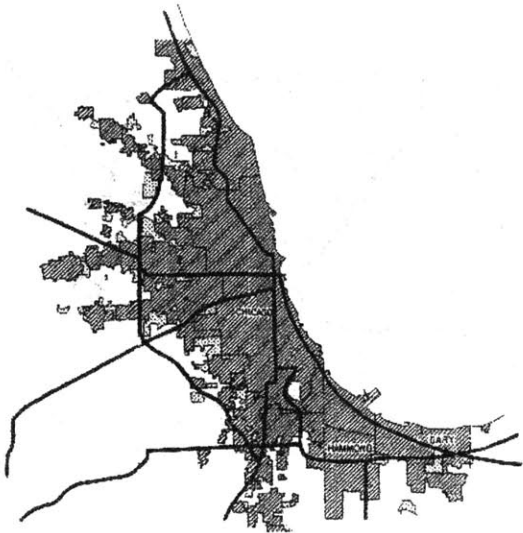
Detroit, Michigan



Washington DC



Boston, Massachusetts



Chicago, Illinois

concepts are introduced prior to case studies so that they remain general, and not attached to any particular condition that may occur in the minutia of specific projects. In addition, no specific solution will be attached to the problem.

2. **Case Studies.** Precedents for highway removal include projects that range from Lawrence Halprin's "Freeway Park" built as a lid above Interstate 5 that snakes through Seattle's financial district, to the Big Dig. Between these extremes exist a middle ground that most cities considering this kind of redevelopment must contend. Using the seven issues identified, three cases were studied. To understand the full number of possibilities, it is necessary to look at solutions in projects from both a macro and micro lens. This analysis provides justification for the core issues, while giving further consideration to additional elements that may be necessary to give the resulting principles practical validity.

To explore the potential of

highway removal, three cases were chosen representing three distinct and extreme solutions, each of which is a sub-typology:

- *Urban Park:* Governor Tom McCall Waterfront Park, Portland, Oregon
- *Transportation Corridor:* The Embarcadero, San Francisco
- *Dense Development:* Park East Redevelopment Plan, Milwaukee

Taken from three separate decades, these projects illustrate both the first interventions of their type as well as the most current issues present in the typology. In the middle lies one of the most conspicuous examples in the Embarcadero Waterfront, a project that truly identified the gene, and has been responsible for many cities' future plans.

3. **Principles.** The lessons that apply widely to all conditions are very apparent. Measures of success vary within each project, leading to

different levels of success within each case study. While no case study produces a pure principle, a hybrid of solutions created by all three case studies forms the individual principles. The combined set of principles form a functioning toolkit that is applied in chapter 8, and thus can be used on future projects.

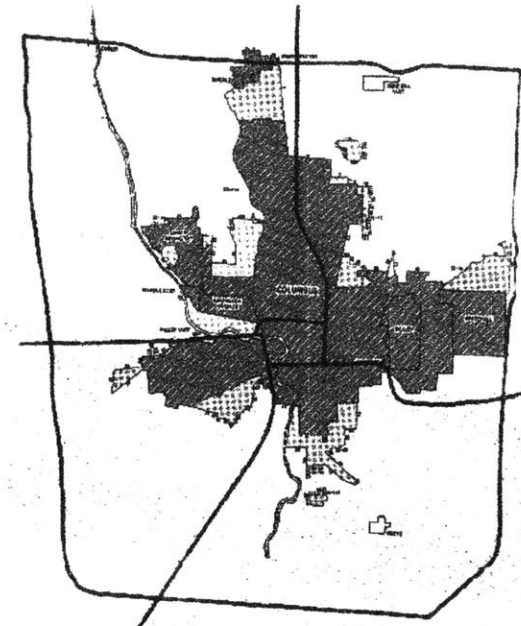
- 4. Application.** Finally, the principles are applied to a case currently under consideration: Seattle's waterfront. Through the process of creating a plan for the Alaska Way Viaduct easement, the toolkit will receive a preliminary test of its effectiveness to create the beginnings of a well-planned urban project. The results are not a polished plan, but a conceptual layout that will result in a strong urban environment once the details and individual spaces are designed.

The application study provides an opportunity for reflection on the approach in practice. It is impossible to anticipate every condition and situation, yet the number of

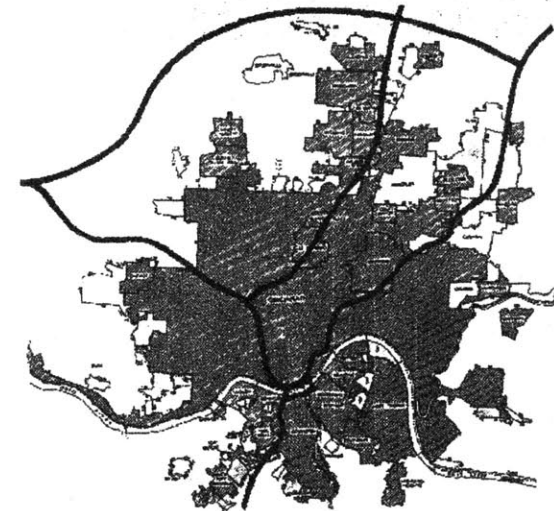
commonalities that exist within these projects suggests that they have more to learn from each other than planners are currently aware. The principles bring together a collection of information not currently available in a single source, intended to be a lexicon for future designers and planners as they shape cities.

Source and Methodology

Analysis of the cases is done largely from the primary planning documents that were produced for the projects. These documents provide an undiluted sense for what the projects set to achieve. In addition, all three plans provide a strong sense for the surrounding environment as it existed before the removal of the highway. As primary sources, these documents cannot be considered wholly unbiased. While the planning documents are created with the intent to accurately portray the surroundings, an argument could be made that they enhance the deprivation of condition to make the work more vital. Wherever possible, the



Columbus, Ohio



Cincinnati, Ohio



Boston's Central Artery has blocked views for decades. Now that removal has begun, how will the land be used?



conditions have been verified through other sources. Documentation for both the San Francisco and Portland cases is sporadic. The primary sources were only found in the cities' respective public libraries, and few additional materials accompanied them. By contrast, the Park East project contains a wide array of city-generated materials, most notably the three section Park East Redevelopment Plan, prepared by HNTB Corporation and the Planning & Design Institute, Inc. (produced October 16, 2003) for the city's Redevelopment Authority.

For the two completed cases,

success can be measured through use and long-term viability. This was achieved by on-site observation in both San Francisco and Portland. These short experiences proved very insightful to understanding the functions and use of the space.

A Touchstone: Boston's Central Artery Project

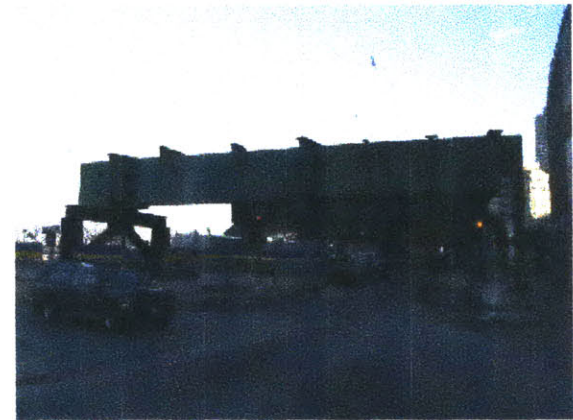
As could be expected, the most often used example of highway removal is the Central Artery project in Boston. *Newfound Land* has been written in Boston, and thus is in some part a response to seeing this typology debated on an every day basis in local publications. For this reason, text describing the efforts in Boston will be included periodically as an aside, to act as a touchstone to the efforts elsewhere. However, the 'Big Dig' is of the scale that can only be compared to other mammoth infrastructure projects, such as the Channel Tunnel in Europe—projects that are larger and more complex than anything that has been completed before them. The price tag alone puts the Big Dig in its own category. While the resulting land being uncovered by the project is within the typology, if not the most defining project of the

A Crossroads

Only recently has the full impact of highway development been realized in cities around the world. For years there was little understanding that these highways not only changed the immediate surroundings, but also changed the development course of entire cities. The changes extended well beyond the physical separation, influencing social structure, neighborhoods, suburban flight, racial tensions, historic preservation and most importantly the perception of downtown America. To combat negative

images, a number of North American cities have begun public relations campaigning to bring people back into the urban core to live and work. Part of this campaign may soon become the creation of new urban spaces made possible by highway removal, such as in San Francisco's Embarcadero. Along with removing a visual eyesore and physical barrier, these projects also take away countless decibels of noise, and drastically improve air quality. However, these projects are not only an opportunity to heal a wound, or erase a scar, but also to leverage existing public systems to greater effect,

archetype, it is first and foremost an engineering marvel. The expense, scale and difficulty of the development primarily lies underground in the complex maze of public utilities, roadways and transit. Unfortunately, it is clear today that the most visible end result of the project—the Rose Kennedy Greenway—is the element that has been given the least consideration, and consequently may have the poorest result. The design interventions being proposed for the corridor may represent one of the most expensive and greatest lost opportunities in the history of American cities. For a city that should have learned guiding principles of large public open spaces through the experience of City Hall Plaza, the Central Artery cannot become another urban space that does not function to its potential. Most alarmingly, it is the Boston example that is now being used predominately by cities around the world who are contending with finding answers to highway removal projects. Thus, the 'Big Dig' is an important precedent to juxtapose against the numerous projects being considered today.



As Boston's Central Artery comes down, new land is reclaimed with views of the sky that have been blocked for half a century.



creating a new and unique condition for private development.

Highway removal projects should be celebrated as victories and opportunities to move urban design forward by using concepts of sustainability and environmental consciousness, allowing the legacy of these elevated behemoths to be reborn as progressive development that makes cities cleaner and healthier.

As planning agencies continue to see success stories from other cities, they must resist the temptation to evaluate them as prescriptive solutions to their individual expressways. Since no two cities are the same, this may lead to the misappropriation of design solutions. An example of this can be found in the Embarcadero Freeway case. In 1990, when the city was faced with finding a solution, officials proposed that the highway be re-built as a \$120 million dollar submerged expressway, similar to Boston's Central Artery plan. It is clear today that such a drastic approach was not necessary. Understanding the typology and the workable solutions that lie within it, intelligent solutions can be created that

work well for urban environments, and detailed to fit specific cities.

¹ A study of the social, economic, and environmental impact of highway transportation facilities on urban communities, p 2.

² Fogelson, Robert M. Downtown: Its Rise and Fall, 1880-1950, p 273.

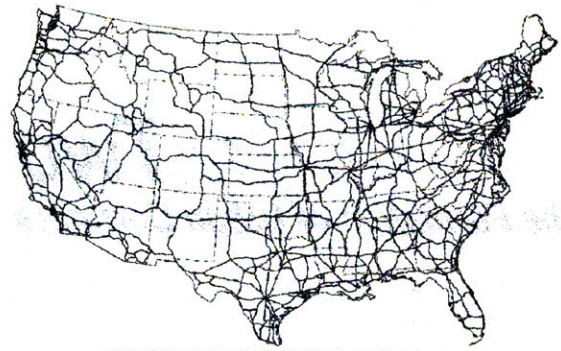
The destruction of downtown America by inner-city highways began during the middle of the last century when the United States underwent the largest national infrastructure improvement program in its history, set in motion by the Federal Highway Act in 1956. The forces that created the urban highway movement, conceived by planners two decades prior, ultimately reshaped the history of the Nation as well as the fate of downtown America. Understanding this progression of the events informs the analysis of the corridors discussed in *Newfound Land*. Without doubt, the creation of the interstate network has proven highly beneficial. Nonetheless, the system and the process that created it are not without controversy, in large part due to the land that was required: when the highway system was instituted, a single mile took twenty-four acres of land; each interchange required eighty acres.

The history of the urban highway removal experience can bring a richer understanding to the analysis of individual cases, and ultimately the principles that this thesis will recommend. Thus, this chapter will present a brief history that outlines the genesis of highways, as well as a series of projects that have begun to lay the groundwork

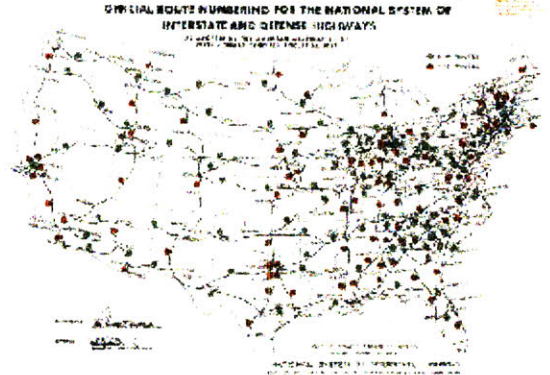
*Chapter***TWO** *The Formation of Urban Corridors*



(1) Smallest Plan, August 1957 Plan



(2) Largest Plan, undated



(3) Accepted Plan, June 1958 Plan

for the typology. Today, as waterfront revivals are becoming commonplace in American cities, highways are the primary roadblock for realizing waterfront rebirth; soon cities will be viewing highway removal projects as having equal or greater potential than waterfront projects.

Seeds of Transformation

In 1956, President Dwight D. Eisenhower signed the Federal Highway Act setting in motion the largest public works project in the nation's history: construction of the interstate highway system. Studies as early as the 1944 Interregional Highway Report began to outline specific requirements that would be necessary for the construction of the system. This document set the groundwork for authorization of 37,700 miles of newly constructed interstate roadway¹. The proposed location and extent of the system was gleaned from three proposals: one which proposed a far less extensive plan (Figure 1), a plan with a substantially larger network or

highways (Figure 2), and another which essentially became the first iteration of the plan that would be built (Figure 3). The final controlling document that set forth the boundaries and overall layout of the system is the 'Yellow Book', created by the Bureau of Public Roads in 1955. The Yellow Book specifically located the roadways, and was handed to every member of Congress before they approved the bill in 1956. The Yellow Book chartered a system that cut across the American landscape, and through the centers of major U.S. cities. This latter portion of roadway--almost 4,400 miles² of the original 37,700 mile scheme, has been the most controversial, both during the time of its construction as well as today, as many of these highways are being replaced or removed altogether.

Fighting the Elevated Image

The 1930's saw the construction of two prominent elevated roadways: Whacker Drive in Chicago, and the west Side Elevated Highway in New York.

Experts, such as Robert Moses, believed that these successes pointed towards a future for elevated highways in urban centers. By the end of the decade, more than one thousand miles of elevated urban highways were in the design phase.³ Most of the roadways were constructed along waterfronts, or cutting through outlying residential areas to get to the urban core.

The key to selling these roadways to opposition groups who saw them as a blight to cities was their early successes. A number of the first elevated highways were constructed in places that were objectionable before the roadway—along blighted industrial waterfronts, or dilapidated commercial and industrial sectors with few or no residents. As an added incentive, the highways were proposed as tools that would encourage future development, an incentive that enticed nearby businesses and property owners to support them.⁴ The American Road Builders Association maintained that the roadways not only would help abutting properties maintain their value, but improve them by providing increased

access and a more attractive appearance than the outmoded, aging railway systems that ran through many cities.⁵

Urban Highways Questioned

It was just three years after the Federal Highway Act was approved when Eisenhower became concerned about the extent to which the highway system was designed to move into urban centers. It had been his understanding that the new interstate program would be similar to Germany's Autobahn, essentially a rural system that does not penetrate city centers.⁶ The crux of the interstate concept was to create an interconnecting grid of roadways that linked major cities throughout the country. The plan was not specific—at least to those not intimately involved with the design work—how the roads were to move into and through urban centers.

The issues that brought the most concern were those of authority and decision making. Eisenhower wanted

to know who had allowed the interstate system to go through urban centers. Were the local planning agencies consulted when the interstate lines were drawn? What factors were considered when the route was laid out? Also of concern was the number of exits designed within these urban-center locations. While the Federal Highway Act was designed to create an 'interstate' system, the number of exits within major downtown areas created an 'intracity' system⁷ whose design would impede the original purpose of the program—to move vehicles quickly across long distances. Early documentation used verbiage that indicated the system was intended to route "the interstate highway system close by but not through central cities."⁸

A memorandum on the "Legislative Intent with respect to the Location of Interstate Routes in Urban Areas" indicated that the interstate highway system was intended to "penetrate the cities and metropolitan areas, and would introduce both intracity and circumferential routes." In addition, Section 103(d) of Title 23 in the 1944 act specifically proposed

that "this system may be located both in rural and urban areas."⁹ To add to this indictment, the 1956 Federal Highway Act provided for "extensions of the interstates through urban areas"¹⁰. Experts of the field staunchly believed that there was no purpose to providing high speed limited access roadways that stopped short of the city gates, leaving motorists in a tangle of traffic that eliminated all of the time saved by the highway in the first place. ¹¹

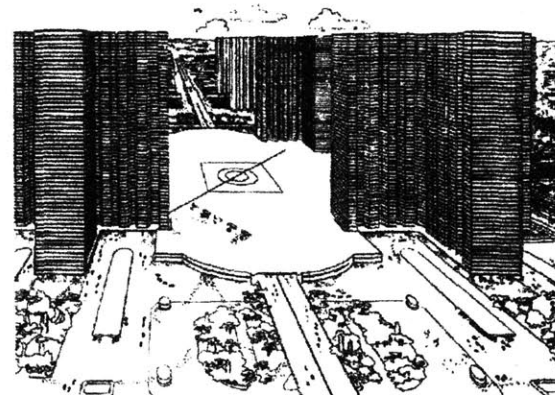
Nonetheless, a number of short fallings became apparent as construction began, and numerous problems were evident in the future design plans. John Bragdon of the Department of Public Works and Planning warned Eisenhower in 1960 that construction of the interstate highway system through major urban centers would be "excessive and destructive"¹². Bragdon's report concluded that this method of highway design was not necessary for the wartime purposes that the system had been purportedly designed. It argued that circumferential roadways around cities would provide the same necessities without creating damage to the urban core. Bragdon's

argument also stated that local urban planning offices had no opportunity for input, that the highway designs did nothing to integrate themselves with other means of local transportation to create a continuous intermodal transportation core within urban centers, and none of the plans were "in accordance with local land use and transportation planning."¹³ In an interview prior to the release of his report, Bragdon stated that "there should be a comprehensive economic growth and land use plan. Then a transportation plan. And of that, one part would be a highway and street plan."¹⁴

The report recommended that the BPR undertake studies of 18 cities that were slated for urban area routes. Bragdon wanted justification for the proposed locations, modifications that were warranted and the feasibility that these modifications could be implemented. The report provided two policy measures. The first proposed that "these highways will ordinarily pass close to, or around, but not through congested areas."¹⁵ The second, proposed that "circumferential routes around and outside the congested

portions of large metropolitan areas are considered as elements of the system... routes within metropolitan areas are considered local requirements."¹⁶

When Eisenhower finally met with Bragdon, he did so in a joint meeting with Bertram Tallamy the federal highway administrator for the Bureau of Public Roads, whom Bragdon had frequent arguments. While Bragdon had a detailed and involved presentation, Tallamy only brought one item to the meeting—the Yellow Book. When Eisenhower was told that the Yellow Book was on the desk of every congressman when the Federal Highway Act was approved, Eisenhower ended the meeting. While Eisenhower reportedly said that "the matter of running Interstate routes through the congested parts of the cities was entirely against his original concept and wishes"¹⁷ he believed that congress had approved the Yellow Book plan largely on the routes that ran through city centers.



(4) *Le Corbusier's City for 3 Million.*

The Assault on Urban Centers Continues

This resulted in a continuation of the Federal Highway Act's assault on America's urban centers. As the 1968 study "The Freeway in the City" contended, the urban core is the most challenging place to build projects of this type because "land values are high, the structures valuable, the intricate interweaving of facilities hard to penetrate; thus the possibilities of a major linear change implicit in freeways are extremely difficult and complicated to achieve."¹⁸ In many cases, engineers found it easiest to design these roadways in the form of elevated highways. They were the 'wave of the future' since 1922 when legendary architect Le Corbusier had designed a futuristic city with elevated roadways snaking between high-rise towers intended to provide space for living and working (Figure 4). The vision included roadways raised on elegant narrow stilts, creating the least 'disturbance' to the land below. As an editor of the New York Times wrote, "When Commissioner Moses finds

the surface of the earth too congested... he lifts the road into the air and continues it on its way"¹⁹. This thinking gave little consideration to those on the ground who were shrouded in shadow and left with land that was difficult, if not impossible to use. Much of the reason these roads were so readily accepted by the governing bodies of cities in the 1950's lay in the deteriorating nature of urban life. City populations were down across the U.S. as people fled to the suburbs for their own part of the 'American Dream', home ownership. It was believed that city's were dying due to lack of modern access. Without an efficient way to move in and out of the city, many argued, people would become frustrated with the long waits that accompanied heavy traffic clogging narrow 19th century roadways. New elevated highways appeared to be the most succinct answer available. With a multitude of exits in the city, these roadways would provide easy access within the city, as well as away from it to other destinations.

It became apparent that these highways were solving fewer problems

than they created. Making matters worse, the Eisenhower administration ignored many of the other problems within the cities. Urban renewal was stalled, essentially putting a hold on low-rent public housing and public transportation programs. A study in 1959 calculated that a rapid transit rail facility could move 40,000 passengers per hour; it would take 40 lanes of highway to move the same number by private vehicles.²⁰ This was a particularly egregious oversight considering the extent that Eisenhower's interstate program was transforming the city.

Despite the negative impact and publicity, mayors of major U.S. cities continued to strike deals with the federal and state highway planning agencies, often dividing neighborhoods, separating sections of the city or destroying them altogether. The lure of federal funding was too large—with ninety-percent federal funding assured, these projects would create immediate work, boosting the economy in the short term for very little state or municipal investment. However, the choice made by these mayors was

shortsighted: by allowing the federal government to annex large plots of land in the city center, they were surrendering hundreds, if not thousands of taxable acres in each city. The combination of these events frequently allowed the interstate highway policy to hasten the deterioration of the city center.²¹

Revolt

Once the federal highway system began building and opening new intercity highways, small pockets of resistance began to grow and fight the city governments who allowed these roadways. One of the first places this occurred was San Francisco, where a group of citizens managed to force the city to stop taking federal interstate money, thus stopping the construction on the Embarcadero Freeway. While the revolt managed to limit the damage, the portion that was built created a physical barrier until October of 1989 when it was unexpectedly damaged by the Loma-Prieta earthquake.

One of the most protracted revolts

occurred on the banks of the Mississippi River, adjacent to the French Quarter in New Orleans. Its importance extended beyond the boundaries of the Bayou into every major city that would endure a battle from the Interstate mavens. Even prior to 1956, New Orleans had desired a new central roadway that could add efficiency to the aging city that no longer held its prominence.

Well into the Twentieth Century, New Orleans remained the largest city south of the Mason-Dixon line, with the largest port outside of New York. In 1946 leaders of the city hired Robert Moses, the most revered highway planner of his generation, to address the problems inherent in the old streets of the city. As was his solution in New York, Moses proposed a series of multi-lane expressways surrounding the city. The highway designated along the Mississippi adjacent to the French Quarter was to rise 5 stories high. Spurned on by the Central Area Committee, a group created by the New Orleans Chamber of Commerce to alleviate urban flight, the Moses plan was seen as the necessary solution.

The new 'Riverfront Expressway' as it was soon dubbed, gained significant political momentum, and by 1964, with the interstate highway system well under way, it was taken to the Bureau of Public roads for approval. As expected, it was approved with little contest. The mayor strongly supported the venture since it brought new jobs into the area at an exceptionally low cost to the city—the three and a half mile roadway would cost twenty-nine million dollars to build, with the city only responsible for paying three million of the cost.

By early 1964, the Louisiana Highway Department began digging a tunnel that would lead to the new elevated expressway, thus beginning the project. Opponents continued to argue for other alternatives, such as a ground level road, or a continuous tunnel. Unfortunately, with the decision made, and construction commenced, these arguments fell on deaf ears.

A series of other cities began the same battle themselves. One of the more notorious aspects of the projects was their placement. Since the government

wanted to create these roads in the cheapest possible fashion, they looked to annex land that would be inexpensive to purchase with the least resistance from locals. This usually occurred on the waterfront or through low-income African-American communities that had few resources to wage a war against a federal decree. As one protester stated, these projects created "a white man's road through black men's bedrooms."²² During such tense racial times, the appearance of such a project was viewed as an attempt to wall off minority communities, if not destroy them entirely. As one example, highway planners in Washington D.C wanted to create a new inner beltway that would run through a low income African American neighborhood as an open trench less than a mile from the White House.

As many began realizing the toll of inter-city highways, Moses began losing power in New York. His designs for three major highways came under such heavy attack that they were ultimately canceled.²³ Those fighting against the insertion of highways in city centers were

given a boost by the Federal Aid Highway Act of 1962 which stated that no agent of the federal highway system shall approve a project unless it is based on "a continuing comprehensive transportation planning process". Furthermore, the Secretary of Transportation could not approve a highway through a historical site unless there was absolutely no feasible alternative.

In 1964 Rex Whitton, the new federal highway administrator, deemed that construction of the interstate system was almost half-complete. This was considered on-schedule, as the original plan intended to finish in thirteen years. While largely correct, Whitton ignored the fact that construction of the intercity portions had slowed considerably—almost to a complete stop—as a result of the growing resentment witnessed throughout the country's urban centers. The original plan stipulated that the interstate highways would be built first where congestion was the greatest. This was no longer true, as trucks and cars were creating serious traffic problems in a number of major cities. However, it

was Whitton's belief that the substantial completion of the rural sections would lead to the public's desire for these roadways to continue into the city. This desire never came.

By 1968, the national press began running stories about the Riverfront Expressway in New Orleans, now emblematic of the fight against highways nation-wide. The project was dubbed "A

Boston's North End—Disconnected Growth

Some literature argues that isolation caused by highways can, in unique situations, have a beneficial effect. One place where this argument has been made is the Italian immigrant community of the North End in Boston. At the time of construction in the mid-50's, the North End was a self-contained Italian community. This separation became a physical barrier when the expressway was constructed, providing visual and physical isolation. The main thoroughfare, Hanover Street, was truncated at the highway, eliminating the primary link into the city center in a move that was characterized as "a genuine physical barrier [that] sliced the historic and residential landmark from the main city".¹ In the process, more than 100 dwellings and 900 businesses were destroyed. Now, for the first time in half a century, the artery is down, and any connection that may have existed when the structure was first erected has now been eradicated by disparate development patterns on either side of the Expressway. During the process of planning the Central Artery removal project, there was concern over what impact removal would have on the North End. What will become of the area if it, in a far more cosmopolitan and gentrified state, re-attached itself to an urban center? This new connection has the potential to open this once self-contained community up to new development pressures as the newly developed land over the Central Artery may be subject to an expansion of the downtown.² In what way can this new land be designed to create connection while still allowing the North End to grow at its own pace, within its own typology?

war that may well determine the shape of urban America".²⁴ The newly appointed Secretary of Transportation under Richard Nixon, John Volpe sent his assistant secretary, James Braman to meet with both sides of the controversy. As the former Mayor of Seattle, Braman had seen numerous arguments for highway construction in urban centers—much of which he fought, including the construction of Interstate 5 which ultimately displaced thousands of families. The decision was made soon after the meeting: the New Orleans highway was cancelled permanently.

Damage Beyond Repair

As public outcry over projects grew strong enough either threaten their success, or cancel them altogether, numerous reports began to be published outlining possible solutions to the issues. It wasn't until 1968 that highway engineers began to understand the fault in their design. In its statement of the problem, one such analysis produced by Washington State University established:

"The design of a highway begins with the selection of a route. This is probably the most difficult and most important part of the whole process. The best route will be the one on which the highway can be most effectively integrated into the design of the city. Therefore we see it essentially as a problem of urban design and only secondarily of highway design. 'Highway beautification' is an expression much used today but we wish to make quite clear the difference between this and highway design as a part of urban design. Beauty in a highway would arise out of its appropriateness to areas through which it passes, its relationships of scale, mass and material, and the way in which it helps to form successful urban spaces. Beauty would have to be inherent in its whole conception, but beautification can only be skin deep. While being thankful for any improvement which can take place on existing roads, we must stress that this is no substitute for good design in the first place."²⁵

This report's beliefs were similar to a number of studies that attempted to

ameliorate the impact of highway insertion while not dissuading the government from continuing the program. These reports were some of the first documents produced recording the tangible sociological impacts of highway placement. While engineers were simply interested in the easiest and cheapest means, they were blind to the fact that their decisions may very well prove disastrous in the context of social engineering. Their designs were almost exclusively based on a "cost-benefit ratio" that was designed to evaluate highway location primarily from the drivers point of view, not the local residents.²⁶ Highway placement decisions are generated by a slow accumulation of changes in highway demand over a series of years. By laying a highway through a neighborhood, the social change is almost immediate and unalterable. When a highway is constructed within or near a neighborhood, small segments of the community begin to dissolve, forced out by the sudden unattractiveness of their location. These fragments of the community search for new homes, usually within the same city. Thus, they invade other communities.



With property adjacent to the highways devalued, parking lots and garages often are built as one of the only functional uses that can thrive in the location.

This in turn affects those neighborhoods, resulting in a ripple-effect that can restructure entire social areas across a metropolitan center.²⁷ The higher density the area, the more pronounced this action becomes. When considering highway removal, a new dynamic is created--just as the insertion of a physical barrier has direct and tangible effects on either side, so does its removal.

Design Conditions

From an urban design standpoint, inner-city highways created a whole new mindset for large-scale infrastructure improvements. Could highways be used as a positive barrier between disparate parts of the city that desired separation? How can the introduction of a major highway have a positive impact on the form and future growth patterns of the urban environment? These questions could not be given any definitive answers, yet their theoretical interest in bettering the environment was at least acknowledgment that highway placement has a direct impact on the form of the city.

The WSU study suggests:

"...Although it is the aspect of scale which presents the greatest problems in freeway design, one must recognize the potential of an element capable of defining or separating urban areas of incompatibility. The corridor and defining qualities of freeway configuration must be recognized and capitalized upon by designers and engineers to give it a proper identity in the structure of the human environment. This does not mean that the freeway should look like a foreign body in the cityscape. It means that its dominance should be interpreted as a spine of orderliness and beauty."²⁸

For this reason, the "selection of the best route is of the utmost importance. Either the freeway will cut ruthlessly across an existing pattern, or it may make use of a corridor or barrier already part of the city structure. It may conflict with buildings close to it, or it may generate a new system of building."²⁹ In most cases, the built form does alter around these inserted highways either in the form of

increased barriers—tall walls, buildings without faces, or by simply shrinking away from the freeway, treating it as a no-mans land best left unoccupied. The result is an urban scar that leaves a permanent trace in the built environment, even in the advent of highway removal.

The insertion of a major highway also has direct implications on use. Where an area could be a successful inner-city residential neighborhood, a highway will force residents away, changing the uses to a light industrial area or similar function that can coexist with noise and vibration. One report of the era states, "...we must aim toward...a new kind of traffic architecture where buildings envelop the roads--around, under, and over. Tunneling, in one form or another, is one answer, just as it was for the railroads when they penetrated downtown at the end of the 19th century."³⁰ While a truly new building typology was not created for these situations, new buildings have adapted to their location. Many of the newer buildings in downtown Boston that face the Fitzgerald Expressway have placed their building services and exhaust



(5) Boston's Fitzgerald Expressway comes within feet of highrise buildings constructed well after its completion.



(6) Buildings constructed before the highway were often modified to deflect noise and pollution. Now they must reconvert to face a new amenity.

fans facing the highway (Figure 5). The buildings that existed before and will outlast the artery provide only the remnants of an existing parti wall with no penetrations. The appearance of these walls (Figure 6) still recalls the open wound left when part of the old building was demolished to make way for interstate construction. These permutations were all intended to mitigate the effects of noise, air pollution and the physical danger of the highway from the buildings' inhabitants.

Redevelopment Projects Underway

To argue highway removal projects are a typology, it is necessary to present the broad array of places where the opportunity is being taken. While the number of cities with this condition are too numerous to count, there are some notable examples which have recently gained attention, and help create a project

The Rose Kennedy Greenway

The best known project of the genre is the Central Artery Project in Boston, whose visibility has given the concept of urban highway removal mainstream appeal. At an estimated \$15 billion, the project has also given the typology a reputation of being monetarily unreachable for any other city, even though the tremendous cost is a function of the infrastructure.

Through three decades of planing and 12 years of construction, little thought has been given to the reclaimed urban surface until recently. Named the Rose Kennedy Greenway, the land is currently under consideration for a variety of interventions, none of which have received any widespread popularity. The first design concepts that helped sell the project depicted vast green spaces that spanned the length of the corridor. Most of the renderings show an unprogrammed space organized by two wide surface roads on each side with intermediary crossing roads. Landscaping was to be a formal, ordered series of trees creating a wide boulevard effect. The variety of these concepts indicates both the differences and similarities of what the public wants.

base informing the boundaries of the typology. While Boston's 'Big Dig' may be the most publicized project of this type, cities across the country and around the world are facing the challenge of elevated inner-city highways. Almost all of them were built during the middle third of the last century, usually along waterfronts, or through poor neighborhoods that were easy to reclaim. All of the projects vary in their scale and invasiveness, but their

conditions are similar, and case studies will prove that there are a set of principles that govern successful projects within the genre.

Freeway Park, Seattle

Freeway Park, designed by Lawrence Halprin, provides an example that falls outside the typology, but informs the boundaries in which the typology

While there are countless ideas on how to use the space for public functions, there are almost no concepts that introduce private development or density. One idea drawn from these charrettes was the creation of a charter school that the public could use. This was one of the only proposals that included a building.

As of January 2004, the Fitzgerald Expressway has been almost entirely removed. Walking through the space makes one realize the immense width and length of these corridors. With multiple plans being produced by both the Turnpike authority and private groups, the final plan may not be resolved by the time the land is uncovered and prepared for development. Given that construction began over twelve years ago, it is disappointing to note that the Big Dig, which is the largest highway submersion project in US history, as well as one of the most public urban renaissance projects in the country, still lies unresolved.

¹ F73.68.N65.T62

² F73.68.N65.M37



(7) Lawrence Halprin's Freeway Park in Seattle straddles Interstate 5 in a multi-segmented park that makes one feel far away from the city.

lies. Constructed as a lid covering a below-grade portion of Interstate 5 as it cuts through Seattle's central downtown area, the park is designed to reclaim the valuable land and reconnect the surrounding districts (Figure 7). The park was completed in 1976, ten years after the completion of Interstate 5. Rather than creating a single open space, Halprin designed a plan with a series of interconnecting spaces that are not visible from one another. It includes a waterfall to drown out the traffic noise in the area.³¹ Unfortunately, this combination—most notably the maze-like configuration, has been attributed to a high level of violent crime that plagues the park every year. Nonetheless, as one of the first projects to reconnect the damage done by highway insertion, it is an important precedent for the nascent field of highway removal and redevelopment.

Sheridan Expressway, New York

The state most scared by highway construction is New York. Home of Robert

Moses, who constructed 627 miles of highway in and around New York City in a 40-year period, the state is just beginning the process of redeveloping the corridors. Numerous organizations have pressured the New York State Department of Transportation to remove the Sheridan Expressway which blocks the Bronx from using the waterfront along its mile and a quarter length.

Historically, few areas were affected by highway construction more than the Bronx during the late 1950's and 60's. The Cross-Bronx Expressway was constructed in 1948; the Major Deegan in 1950, the Bruckner in 1957 and the Sheridan in 1958. Recent studies have shown that the surrounding areas are now subject to the highest asthma rates in the state.³² Today the roadway only carries one-fifth the traffic volume of the surrounding highways. The goal of project proponents is to create an urban amenity of open space and waterfront access. The Department of Transportation has issued a 1997 plan to connect the Bruckner Expressway to the Sheridan in an effort to reduce congestion. The new ramps

that would accompany the development would bring more trucks into the area and isolate the neighborhood of Hunts Point from the Bronx. Community residents have successfully fought the plan to this point. Their proposal replaces the highway with a bike and pedestrian path oriented park that would connect into the larger Bronx River Greenway, a 23-mile proposal for the entire river.

Gardiner Expressway, Toronto

The City of Toronto not only has removed a portion of its central highway, it has plans to demolish the Gardiner Expressway in its entirety. Built in 1964, the Expressway was intended to bypass the southern portion directly on the waterfront. While the project was never fully completed, the portion adjacent to the downtown financial and tourism district was built. Today it acts as a physical barrier between some of the city's most notable tourist attractions and Lake Ontario. For years the city has considered developing a 2000 acre parcel of land called the Portlands that

juts directly into the lake just to the east of downtown. Part of the difficulties in this development have occurred through the separation caused by the highway to the east of the city. Less than a year ago the city finally removed the highway stub that separated the Portlands from downtown. The city has plans to replace the stub with a new lakefront boulevard that will provide for cycling and pedestrian uses within a greenspace accented with public art. Toronto is now considering finishing the deconstruction by removing the entire expressway. Unlike the Sheridan in New York, which never met its capacity, the Gardiner sees over 200,000 cars per day.³³

Toronto has grand plans to rework the entire waterfront. The preliminary planing for the redevelopment is in the Central Waterfront Plan, which outlines the scope of what they hope to achieve. Even this document concedes that the "redesign of the Gardiner Expressway corridor and replacement of its capacity with a modified road network is one of the most important ingredients in revitalizing the Central Waterfront. It will allow the



(8) Seoul's new river reclamation project will remove the Cheonggyecheon elevated highway, uncovering the river that runs below it. The project intends to begin a trend of sustainability and environmental conscientious to the city.

city to be reunited with the lake, promote strong pedestrian corridors between the downtown and the water, and accelerate the transformation of an underutilized part of Toronto into a vibrant mixed-use waterfront district.”³⁴

Cheonggyecheon Highway, Seoul

The most recent entrant into the highway removal planning process is also one of the most dramatic examples, and deserves special consideration for its interest in creating sustainable design. In Seoul, South Korea, Mayor Lee Mung-Bak has ordered the removal of the city's central six-lane elevated highway. As one of his major campaign promises, Lee has already had the Cheonggyecheon Highway demolished, and currently has the city in the process of designing a pedestrian oriented space on the new land. He believes that the viability of Seoul lasting well into the next century hinges on its ability to “recreate itself from an industrial city to an ecological city that

is sensitive to its historical and cultural past.”³⁵

Lee holds lofty goals for the corridor. The Mayor plans on using the area as the center for his redevelopment strategy, which he hopes will become the economic, cultural and environmental center for the city. The new development is to be planned by the Seoul Development Institute (SDI), funded by the city. Seoul has a commitment in this project to providing a sustainable transportation system. While the specific plan itself has not been created, it will reportedly contain grass and recreation space with sidewalks and two or three lane roads on each bank, including as many as 21 bridges spanning the stream (Figure 8). The current design for the project divides the 6-kilometer redevelopment zone into three parts. The first portion would be designed as a “center for urban culture, reconstructed to revive a historical atmosphere, including the location where women used to wash their clothes on the side of the stream.”³⁶ The second development sector would serve as a tourism and shopping district. The plan is intended to “emanate an

environment where tradition meets modernity and idyllic scenes harmonize with metropolitan life.”³⁷ The third sector will focus primarily on natural conservation and environmental friendliness.³⁸

Transportation Impact

When highways of this magnitude are removed, frequently the first questions that are asked are those involving congestion. Remarkably, as will be seen in the San Francisco case in chapter four, the system was capable of adapting. While the San Francisco case exhibits the most extreme example, Seoul is not far different. In anticipation of the highway removal, Mayor Lee implemented the city’s first formal bus line. Nonetheless, not all motorists can, or could be expected to immediately change modes from private vehicle. Surprisingly, on the first day that the highway was closed, traffic ran smoothly.³⁹ While many people changed modes, others resorted to changing their commute times to off-peak hours, dispersing the most congested periods of traffic. Today, several months

after the closure, traffic continues to run smoothly, although skeptics believe it is only a matter of time before those that switched to public transit for the short term return to their cars. Nevertheless, cases such as this have proved that transportation can be extremely elastic. This precedent gives new hope to cities that face numerous concerns about congestion and traffic volume.

A Crossroads

If these projects indicate anything as a group, it is that they are massive undertakings that go beyond the traditional boundaries of city making. They are often part of lofty political agendas and cornerstones for downtown revitalization. The money necessary to complete these projects is often well beyond any scope that the city has ever considered. For these reasons, the decision to move forward with these projects is visceral—conventional wisdom and budget constraints would most likely go against these developments. Nonetheless, there have been enough visionaries in both

public office and private development to push these projects into reality. In the case of Boston, this process took over 30 years and remains ongoing. The cities that have successfully removed their highways have all experienced a rebirth and renewed interest in improving the city. In some cases, such as San Francisco, the removal of one highway has led to the removal of another, and plans for others in the future. As more cities are trying to attract people back to the urban core, projects like these may become more regular. The removal of these highways offers an unprecedented opportunity to create a multitude of public open space and private development in the heart downtown.

- ¹ Mertz, Lee. "The Bragdon Committee".
- ² Ibid.
- ³ Fogelson, Robert M. *Downtown: Its Rise and Fall, 1880-1950*, p 276.
- ⁴ Ibid, p 279.
- ⁵ Ibid, p 281.
- ⁶ Mertz, Lee. "The Bragdon Committee".
- ⁷ Lewis, Tom, *Divided highways: Building the Interstate Highways, Transforming American Life*, p 146.
- ⁸ Ibid, p 146.
- ⁹ Mertz, Lee. "The Bragdon Committee".
- ¹⁰ Lewis, Tom, *Divided highways: Building the Interstate Highways, Transforming American Life*, p 148.
- ¹¹ Fogelson, Robert M. *Downtown: Its Rise and Fall, 1880-1950*, p 273.
- ¹² Lewis, Tom, *Divided highways: Building the Interstate Highways, Transforming American Life*, p 147.
- ¹³ Mertz, Lee. "The Bragdon Committee".
- ¹⁴ A Report in the Making (fhwa.dot.gov).
- ¹⁵ Mertz, Lee. "The Bragdon Committee".
- ¹⁶ Ibid.
- ¹⁷ Meeting Minutes: Interim Report on the Interstate Highway Program (fhwa.dot.gov).
- ¹⁸ *The freeway in the city; principles of planning and design*, p 12.
- ¹⁹ Lewis, Tom, *Divided highways: Building the Interstate Highways, Transforming American Life*, p 183.
- ²⁰ Mertz, Lee. "The Bragdon Committee"
- ²¹ Lewis, Tom, *Divided highways: Building the Interstate Highways, Transforming American Life*, p 153.
- ²² Ibid, p 197.
- ²³ Ibid, p 197.
- ²⁴ Ibid, p 205.
- ²⁵ A study of the social, economic, and environmental impact of highway transportation facilities on urban communities, p 4.
- ²⁶ *The freeway in the city; principles of planning and design*, p 11.
- ²⁷ A study of the social, economic, and environmental impact of highway transportation facilities on urban communities, p 149.
- ²⁸ Ibid, p 10.
- ²⁹ Ibid, p 11.
- ³⁰ *The freeway in the city; principles of planning and design*, p 12.
- ³¹ greatbuildings.com
- ³² Burger, Danielle. *A Community Plan for Moses' 'Highway to Nowhere'*
- ³³ *Bulldozers Target Another City Highway.*
- ³⁴ *Central Waterfront Plan, Part II.*
- ³⁵ *Unburying the Past.*
- ³⁶ *Cheonggyecheon (Stream) to Feature Three Themes.*
- ³⁷ *Cheonggyecheon (Street)'s rebirth begins.*
- ³⁸ Ibid.
- ³⁹ *No traffic chaos, despite Cheonggyecheon(Stream) project.*

Chapter Three *Realizing a new Urban Typology*

In an effort to find common ground for analyzing the case studies and to illuminate the principles that drive this project typology, this chapter presents the core issues to be considered throughout this thesis. These issues can be considered as a series of seven decisions, or problems that need to be answered in each project:

- Design Concept
- Connection
- Edge Condition
- Morphology
- Regulation
- Transportation
- Property Rights

This list is culled from traditional planning literature by Kevin Lynch and Alan Jacobs, as well as an informed study of numerous cases within the typology. The latter

source, which was presented in part in chapter two, proved to be especially critical, as it became apparent that the planners of today do not understand that this typology exists. With a growing number of planning departments considering highway removal and looking for precedents, cities may pass over pertinent examples because many do not believe they are relevant. One area of confusion is that highway removal projects come in two types: one sided projects that directly abut a waterfront, such as San Francisco, or Seattle, or two-sided projects that have built fabric on both sides, such as in Boston or Milwaukee. While different, the typology is the same. A one-sided example is never truly one sided. While the space may not directly interact with built fabric, it reacts to a waterfront that may be an amenity or an industrial port. In either case, it is an edge that directly influences everything that is designed for the space. Moreover, as seen in both San Francisco and Seattle, waterfronts are built edges, composed of wharves and other structures that have become tourist centers for each city.

The demolition of elevated highway structures does not present a 'tabula rasa'. The conditions left in the wake of removal are some of the most damaged within a city. The buildings that survived the process of insertion and fifty-plus years of operation have adapted, as their walls are designed to repel noise and dirt. Many surrounding parcels remain vacant as a result of a deconstructed fabric ripped by the original demolition, and decades of low property value caused by unusable space and dark shadows. In addition, the highway acted as a divide causing the adjacent parcels on either side to develop independently.

The new space left for development must take into account that the surrounding edges of the corridor may very well deny any strong connection. Building facades adjacent to highways are almost entirely solid, unarticulated walls. Since these spaces are almost always adjacent to natural water features, a significant question of ecological reclamation exists: the new project must mediate between the urban edge and reclaimed natural boundaries.

The design of these projects must also take advantage of the immense and unprecedented opportunities in the typology. Seven distinct opportunities are identified in this chapter:

- Scale
- Use
- Location
- Transportation
- Public Benefit
- Increased Tax Base
- Waterfront Enhancement

The issues and opportunities provide a starting point for comparing each of the cases. A description defining each of the issues and opportunities follows.

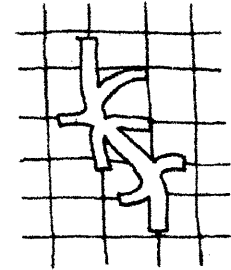
Issues

1. **Design Concept.** It is highly unusual in the major urban downtown's of today to find large expanses of open land. Highway removal provides this unique opportunity. Is the new design conceived:

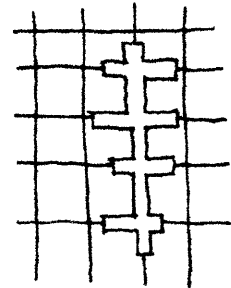
- As a unique link between the surrounding fabric?
- As an infill project intended to continue the existing fabric, with the intention of seamlessly erasing the scar?
- As a unique entity that exists within the city—an opportunity to provide amenities to the surroundings while not directly relating to the surrounding fabric and neighborhoods through repeating forms and program?

Within this conceptual armature, a second consideration is necessary: is the swath divided into separate areas, or districts, or is it one uninterrupted expanse that is painted with the same conceptual brush? In the same vein, is the development created whole, in a single phase, whether that be public or private, or is it phased in a way which allows market forces to influence future phases, thus creating development opportunities which may vary from the initial needs identified in the masterplan?

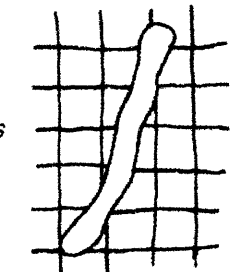
Design Concept A: a unique link between surrounding fabric?

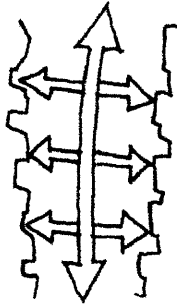


Design Concept B: an infill project continuing the existing fabric?



Design Concept C: a unique entity that brings new amenities to the city?





Connection: longitudinal or latitudinal?

2. **Connection.** When a highway is removed, how does the new development relate the two existing development patterns on each side of the corridor? Which direction does the 'urban grain' run? For descriptive purposes, longitudinal refers to 'grain' that runs parallel to the new urban corridor, whereas latitudinal runs perpendicular. Connections can be established as:

- **Infrastructure.** In most cases there are existing infrastructure connections that connect the two sides, or latitudinal connections, that traveled underneath the elevated expressways. Are these maintained? Augmented? Are the new infrastructure improvements designed around a primary arterial street system that follows the corridor as the highway once did, or does the primary street system connect across the corridor with longitudinal travel provided on adjacent existing streets?
- **Grain.** This is achieved through the organization of blocks, open spaces and orientation of parcels. What direction should the grain run—the dominant longitudinal direction, or should the grain emphasize connection through a latitudinal orientation?
- **Visual connections.** Is there an attempt to visually relate the two sides of development, or do the primary visual elements lead users down the length of the development?
- **Pedestrian connection.** With the removal of a primary infrastructure element, the reintroduction of pedestrian routes is an important opportunity. How is the plan designed to maximize the pedestrian and bicycle environment in an effort to decrease the use of cars?

3. **Edge condition.** Over the number of years that a corridor's edges have evolved, new buildings have been constructed, and existing buildings have adapted to the condition of adjacency. In some cases, the edge has developed into a wall, as seen in Boston, whereas in other conditions, the surroundings have defragmented. Both of these conditions result in the surrounding built environment turning its back on the highway corridor. How is this condition addressed? How are existing buildings brought into the project? Is it necessary to find solutions to ameliorate this condition?

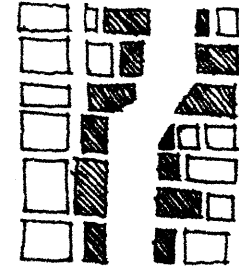
4. **Morphology.** This issue underlies the built form within the project area, including the building typology, heights, sizes and overall design layout. These are controlled through two primary tools: programming and parcelization. Within the set of programming, special consideration is given to open space, as it has proved to be an essential element in most plans of the typology.

Open Space. Almost all plans take advantage of highway removal by creating open space. This is done in a variety of ways—programmed and unprogrammed. How much space is dedicated to this purpose? Is the space landscaped, or hardscaped? What is its relationship to the other elements of the design?

Programming. The space can be dedicated to a few purposes or a multitude of functions. Is the space heavily programmed, or is it open space that people can occupy as they wish? Does the program reflect the surroundings, or provide elements that compliment the context? Does the space allow for more public, pedestrian uses, or space for private enterprise?

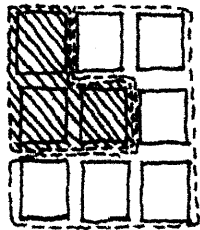
Parcelization. The division of land can range from a single parcel to hundreds. Is the land divided to address different adjacencies and conditions or is it designed to be

Edge Condition: how do the adjacent buildings and parcels address the new city form?

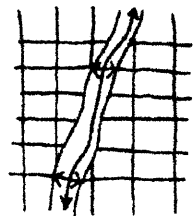


Morphology: how does the new fabric relate to the existing city?

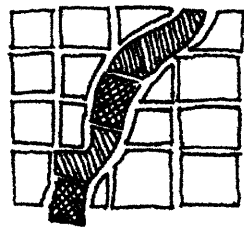




Regulation: how is the area zoned; what part do urban design guidelines play?



Transportation: is new transit inserted into the site? What parts of the city grid system are continued, if any?



Property Rights: who owns the new parcels? To what extent does government own an operate the site?

autonomous. Density of the space is largely controlled through this measure. Larger parcels would allow for more commercial uses if zoning allowed. Smaller parcels would lead to a finer grain, usually associated with residential neighborhoods. Is the parcelization scheme intended to be built up in the same way as the existing surroundings, or is it an opportunity for an oasis of open space for the city?

- 5. Regulation.** A key component to how the space is divided: does the government impose strict zones that create specific pockets of development type, or is the area a single zone allowing particular designated uses while allowing market forces to ultimately decide the program within the parameters? How is building height controlled? These issues can be handled through zoning, incentives, ownership, property rights controls or simply information that is intended to direct developers in the future. This is a key component that has a direct effect on morphology as

a tool, influencing both the type and amount of programming, as well as the amount of capital invested in the site.

- 6. Transportation.** The removal of a major transportation artery immediately creates the question of future congestion. If there is a new street system provided in the corridor, does it provide similar entrance and exit options as the highway? Does it attempt to alleviate traffic congestion on a grid level, while providing similar routes? Is the long, linear space created by these conditions an important and unique opportunity to provide public transportation without the difficulties of finding appropriate transportation corridors?
- 7. Property rights.** What is the ratio of public versus private development? How is ownership of the land handled? Is ownership parcel by parcel, or are whole districts controlled by one entity? How are property rights decided upon? Are developers

limited in the quantity that they control to ensure a variety of disparate built forms? As is the case in many large urban projects, the way in which the government handles the land is of primary importance. Do they provide ownership and operation, regulation, incentives or simply information to persuade developers?

Opportunities

The seven core issues categorized above address questions of development, density, and whether this newfound space is used as a seam between existing developments, or as an opportunity to create an urban oasis that usually could not be built in a location with high density. These decisions should be strongly influenced by the tremendous opportunities inherent in highway removal sites. Planners may find themselves lost when approaching a project of this scale, since they do not see any comparable situation that they can draw from. By understanding the opportunities in these projects, planners will be able to tap into

the vast possibilities, ensuring that they do not squander the rare opportunity presented to them. Key opportunities include:

1. **Scale.** As a result of the massive easements that this scale of infrastructure require, this project typology creates spaces between twenty and sixty acres, in some case even more. The width of them can far exceed a hundred yards. This presents a rare opportunity to create different types of spaces not generally found in urban centers. The scale allows for larger program interventions, a new open space network and most importantly an integrated combination of elements. This integration allows development to be heterogeneous and multifaceted, a rare opportunity in a dense urban core.
2. **Use.** Dense downtown districts seldom are afforded the opportunity to explore alternate uses of a different type or scale than already exist in their core. Most urban cores are

established dense office and retail zones, in some cases with narrow or unusual street patterns. In these cases there is almost no opportunity to realize large-scale uses. Urban highway removal projects have an opportunity to act as catalysts that provide growth and activity to the entire city, not just the immediate area. Examples of programs that this quantity of space can allow for are:

- ***Arena/Stadia.*** One of the current urban archetypes that cities are tapping into today is the urban stadium. These have been catalysts for renewal in San Francisco, Baltimore, Seattle and Cleveland. These projects have brought a different demographic of people during non-working hours. As a result, other supporting uses such as restaurants, retail and clubs have followed. Although no city has yet proposed it, the possibility of transforming a space of this size into a group of Olympic venues and housing fully takes

advantage of this opportunity. The insertion of a new stadium that can then be converted for use by local teams, as well as an Olympic village, which could be transformed into downtown condominiums or apartments would create an immediate downtown draw based around an event that could then find conversion into unique amenities not currently provided in downtown centers.

- ***Incubator development.*** Traditional office space provided in dense downtown financial districts seldom are financially viable for unique office space concepts such as incubator spaces. With the government behind the development and parcelization, this concept could be achieved. An incubator development would greatly benefit from such a close proximity to establish downtown businesses and the services that locate near them.

- **Schools.** Colleges and even high schools may be able to strongly benefit from a centralized location. First, downtown cores are usually well serviced by public transportation. Secondly, the atmosphere of downtown would provide unique and stimulating opportunities that most schools do not have. While an entire campus may not be a realistic option, a small specialty school, or a branch of a university or community college would fit well into the environment.
- **Open Space.** Only in rare occasions is it possible to carve out significant open spaces in urban cores. This is a result of ownership and parcelization, which together make this type of intervention infeasible for private ownership, and difficult to create without collecting numerous parcels and blocks. Open space will create a more livable downtown environment,

ultimately encouraging residents, restaurants and other after hour and weekend uses to locate in the area.

3. **Location.** With generally a homogenous use pattern of dense office and retail space, the location of urban highways is typically ideal for housing or large civic uses that can capitalize on the adjacency. Within most cities there is not an opportunity to input large or innovative uses near an established dense urban environment. Nonetheless, in the rare opportunities when this is possible, the project should take full advantage of the surrounding amenities. Downtown urban cores are vibrant at many different times during the day. New uses could augment and support those activities, or provide yet another activity that will bring life into the city during its more dormant hours.
4. **Transportation.** The genesis of these corridors is transportation. With the removal of elevated arteries,

this does not mean transportation elements are not appropriate. The narrow, long configuration of the sites is conducive to new transportation lines that provide signature elements and identity to the city. Within urban cores it is generally difficult, if not impossible to add new transit lines that are not buses. These corridors provide a rare and unprecedented chance to integrate a streetcar or trolley system that could not fit in the narrow streets of downtown.

5. Public Benefit. The nature of dense urban cores frequently is a result of smaller parcelization. This morphology makes large spaces only possible when an accretion of parcels become available. Rarely, if ever, do these amount to enough space that will provide a substantial public amenity. Even in situations where large amounts of land are developable, frequently the municipality does not own the land. The combination of these factors creates the unique condition of a large quantity of

publicly developable land. This rare opportunity cannot be squandered in solely private developments similar to those that surround these sites. In addition, the scope and scale of these projects also places them squarely in the public eye. For this reason, consideration of public uses is imperative.

6. Increased Tax Base. Large public improvements are frequently difficult to complete because money allocation is a long and difficult legislative process. The opening of 50 acres of land in an urban setting for a public project is a tremendous financial burden. To ameliorate this encumbrance, the land provides the possibility of increasing the city's tax base. While the maximization of this possibility—dense development, may not be the best solution, a combination of development and open space can work together to create a well-balanced relationship. New development would provide some of the monies necessary to fund public

interventions, while public projects may increase the land value of the adjacent private properties.

7. *Waterfront Enhancement.* In the cases of cities such as Toronto and Seattle the existing highways provide a continuous and unbroken barrier between the water and the urban core. In all projects of this typology, water is a dominant element in the design strategy. As waterfront development is becoming a universally recognized strategy to downtown revitalization, urban highway removal projects stand at the forefront of the archetype. Just as adjacency to the core provides a unique opportunity, so does their relationship to the waterfront. This is unusual, and must be taken full advantage of, as it is an existing public amenity that may have been underutilized for a half of a century.

As the construction of highways dramatically altered the course of cities, so will their removal. By understanding the full range opportunities, it will be

easier to formulate intelligent solutions that take advantage of the situation, providing unique answers instead of creating development that can easily be found elsewhere. These areas have the potential to become both beautiful and functional public and private amenities for the immediate surroundings. Thus, these projects can act as a fulcrum for the municipality to leverage development within the city, draw people back into the downtown and bring tourists in nationally to enjoy the renaissance of the city.

Highway removal projects almost exclusively fall within the realm of waterfront projects, yet their opportunities in many cases are greater. It is on this canvas that planners and designers must insert a project that recognizes these conditions, allowing for a healing process through both design and policy for the decades it will require the site to redress itself and address the new urban context. Together, these issues and opportunities will allow a critical analysis of case studies that will derive the final set of principles that govern successful interventions in this typology.

The Urban Park typology represents the first substantial foray into urban roadway removal and redevelopment. This typology is of particular interest because it is being used in Boston's Rose Kennedy Greenway. The greenway scheme provides little in terms of program, and while appropriate in some scales, often is overused in the urban context. Nonetheless, as the typology that most likely will be implemented in the most notable of all highway removal projects, it is imperative that this concept be understood. This and subsequent case studies begin by examining the history of the project, followed by an assessment across each of the issues identified in the previous chapter.

History

In 1974, Governor Tom McCall of Oregon pushed for the removal of the Harbor Freeway along Portland's waterfront so that it could be turned into a pedestrian friendly park, realizing a vision that the city had held for close to 100 years. The decisions made

Chapter Four

Urban Park Typology

Gov. Tom McCall Waterfront Park

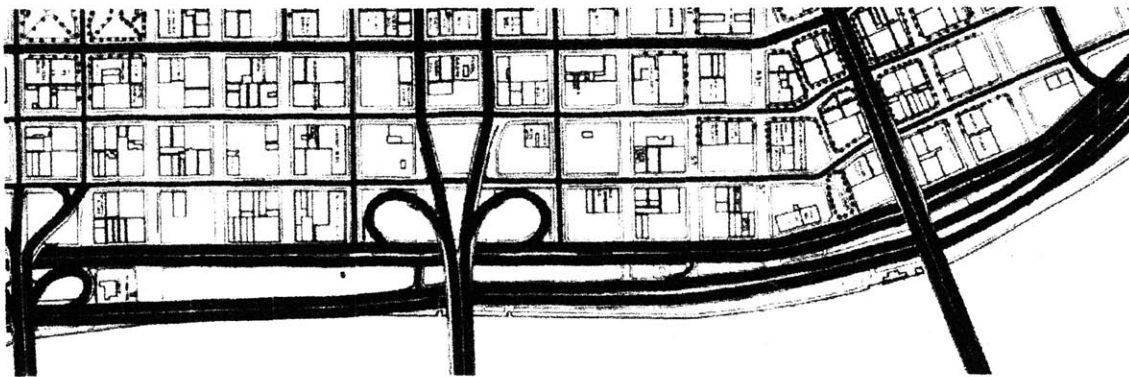
in the project were generated from two primary documents. Foremost is the *Final Report for the Downtown Waterfront Park* prepared by Wolff Zimmer Gunsul Frasca Partnership in 1975. This document outlined the boundaries, design and funding of the project. It contained the vision that the space has become, with many specific desires articulated for implementation. The second document prepared by the same architecture and planning firm was the *Waterfront Study Phase I Report*, produced in 1972. This study provided critical information on potential and unrealized solutions that give insight to additional issues that may have proved more successful than the approved plan.

The first formalized park concept for Portland was proposed in 1903 by

Fredrick Law Olmsted, one of America's great greenspace and urban park designers. He believed that the park needed a scheme for the riverbanks and the city. Beginning in 1912 the first of at least 10 formal plans were produced. In almost all cases, these plans proposed a 'waterfront esplanade' that would be for the 'use and enjoyment of all its citizens'¹. Nonetheless, as did many cities during the era, Portland designated its waterfront for the use of public depots—a place where shipping interests could seamlessly transfer into a railway system that could deliver products throughout the Northwest. By the 1920's, the railway had expanded along most of the city's urban waterfront, leading many to believe that Portland was the best-served port on the West Coast. To prevent frequent flooding from the Willamette River, a seawall was constructed. These two components completely severed Portland from the river that that was responsible for its birth.

The continued growth of shipping ultimately lead to the need for new, larger facilities that would best be placed outside the city. Thus, the decline of Portland's

(1) Harbor Drive as it existed in 1974, dominating the Willamette riverbank. Source: Waterfront Study



waterfront began, with abandonment and vacancy becoming the norm. In 1940, the city constructed Harbor Drive along the west bank (shown here as it existed at the time of its removal: Figure 1). This roadway was constructed on derelict land that industry had abandoned years before. Over a decade later, Interstate 5 was constructed on the east bank of the river near the city, with the huge Marquam Bridge crossing to the west bank just south of the downtown core. When I-5 was complete, Harbor Drive was no longer a primary arterial, making its existence unnecessary. In 1968, Governor Tom McCall created the Harbor Drive Task Force to examine the potential of removing the roadway and proposed a public park in its place. When reviewing the dossier of previous similar planning efforts, the theme of an esplanade was ever-present. The concept of maintaining or restoring historical landmarks and districts was also amongst the primary planning efforts in these projects. All of them attempted to regain the rivers livelihood through public related uses and activities including housing, retail,

recreation and office space.

The plan finally came to fruition in 1974 when Harbor Drive was removed and construction of Waterfront Park began. By 1978, the park was opened to the public.² The Willamette River bound its area on the east, and Front Avenue to the west. The plan followed the concept of a waterfront esplanade, providing a large 23 acre park nearly a mile in length. The resulting park is a largely unprogrammed expanse used by joggers and local workers from downtown. The space has been successful in boosting the property along the edge, in part due to the careful consideration the plan gives to the edge condition. Despite its successes, the project, now 25 years old, is under consideration for a partial redesign. The proposed improvements will give more articulation to the space through additional program elements, redressing past mistakes and oversights.

The park was designed during the late 1960's and 1970's when cities were just beginning to see and react to the grave damage done by highways, declining industry and abandonment. As a result,

numerous municipalities, many of which were used as case studies by Portland, created reactionary responses leading to the creation of large unprogrammed open spaces which would help bring nature back in the city, and drive away the pollution of roadways and industry. In this context, the Portland Waterfront Park plan is a suitable and appropriate response; planners universally heralded its success at the time. With changing needs, and a new understanding of how urban density can be done well, it is not surprising that Portland is now reexamining the space.

Design Concept

The design concept for the park is that of a unique entity, unattached to its surroundings—an amenity that the city

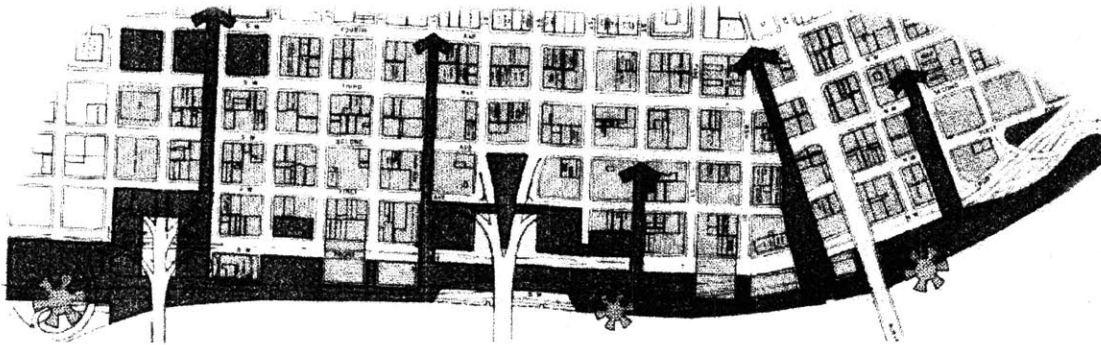
could not have carved out of its urban core in any other way. The Waterfront Plan considers two conceptual approaches for the space—the linear approach which ultimately is reflected in the final plan, and an integrated approach, which deserves particular attention since it reflects Olmstead's concept in 1903.

The 'Integrated Park' concept (Figure 2) proposed a close relationship between the downtown and waterfront. The park would become a linking element joining the surroundings and bringing the River back to the city. The Waterfront Study states:

"The Downtown would penetrate the Waterfront area and conversely the Waterfront would penetrate the Downtown. No Strong line of demarcation would be drawn. Each area would mix with and draw upon the character of the other. The Waterfront would become a sequence of spaces and events."³

The plan proposed a concept where the site would be divided into various sections, some around existing landmarks. In certain places the urban fabric would

(2) *The Integrated Waterfront Park Concept. Source: Waterfront Study*



be allowed to extend to the waterfront like fingers reaching towards nature. Conversely, the open spaces that stood between these fingers would extend into the urban core, connecting to a system of public greenspaces within the city. This concept is reminiscent of the first ideas Olmstead produced about an integrated greenspace program that would connect and unify the city.

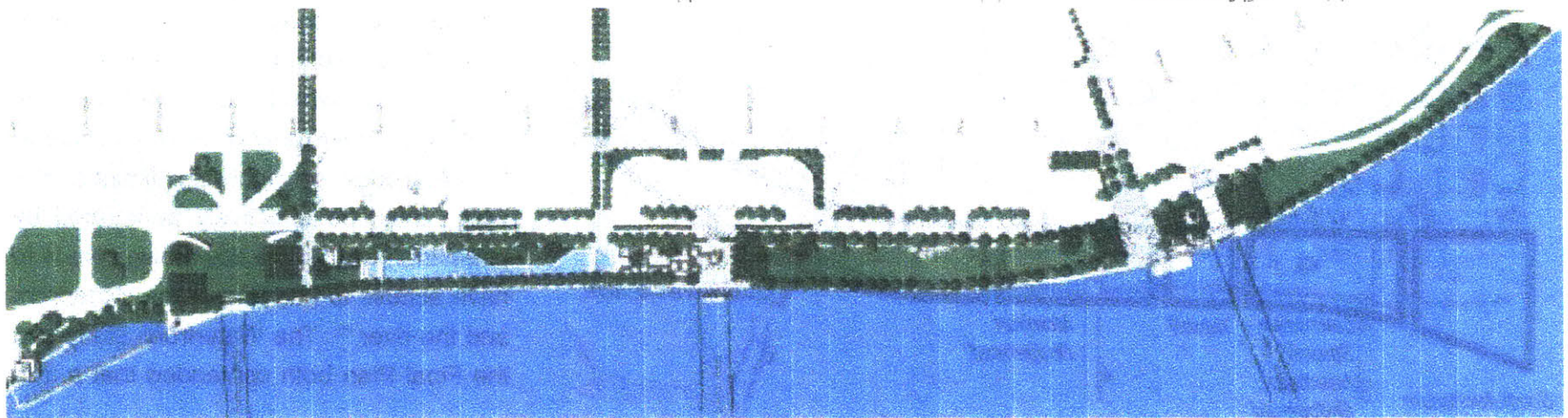
In contrast, the 'Linear Park' concept that was eventually adopted (Figure 3) proposed a 200 by 5000 foot park, with the intention of treating Front Avenue as a transition zone—it would be a tree-lined, landscaped boulevard that mediated between the disparate urban and landscaped conditions. The

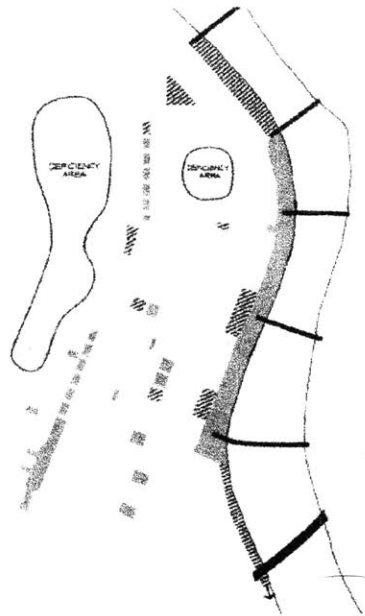
plan specifically intended to identify and separate these conditions: "...the separate and very different qualities of the Downtown and its 'Waterfront Park' would suggest a strong contrast exist between the two rather than close integration."⁴ This articulates the idea of an urban oasis, or jewel that is different, and complimentary.

The resulting plan (Figure 4) is primarily rooted in the 'linear park' concept.

(3) Below. The Linear Waterfront Park Concept. Source: Waterfront Study

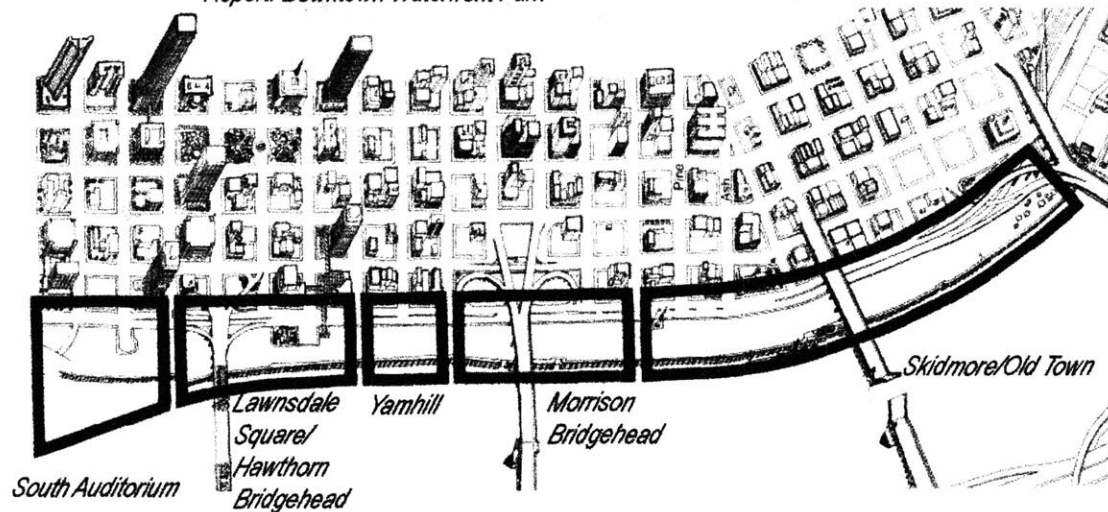
(4) Bottom. Waterfront Park Plan, 1974. Source: Waterfront Park Masterplan





(5) *Downtown Portland Open Space Study. Source: Waterfront Study*

(6) *Waterfront Park district identification. Source: Final Report: Downtown Waterfront Park*



The initial Waterfront Study identified a unique and unusual opportunity to make it a well-integrated part of a greenspace system that was never realized. While the current constructed concept of a separate, special amenity takes full advantage of the opportunities inherent in this project type, it could have maintained this appeal while making a stronger relationship with the numerous city parks in the downtown area (Figure 5).

Although the plan stands as a singular open space, project designers divided it into five districts that were intended to relate to the surroundings. The districts shown in Figure 6 span under

bridges in several cases. This concept is especially important in understanding a site of this size and location—while the project resulted in one program, designers thought about the park as a series of spaces.

Connection

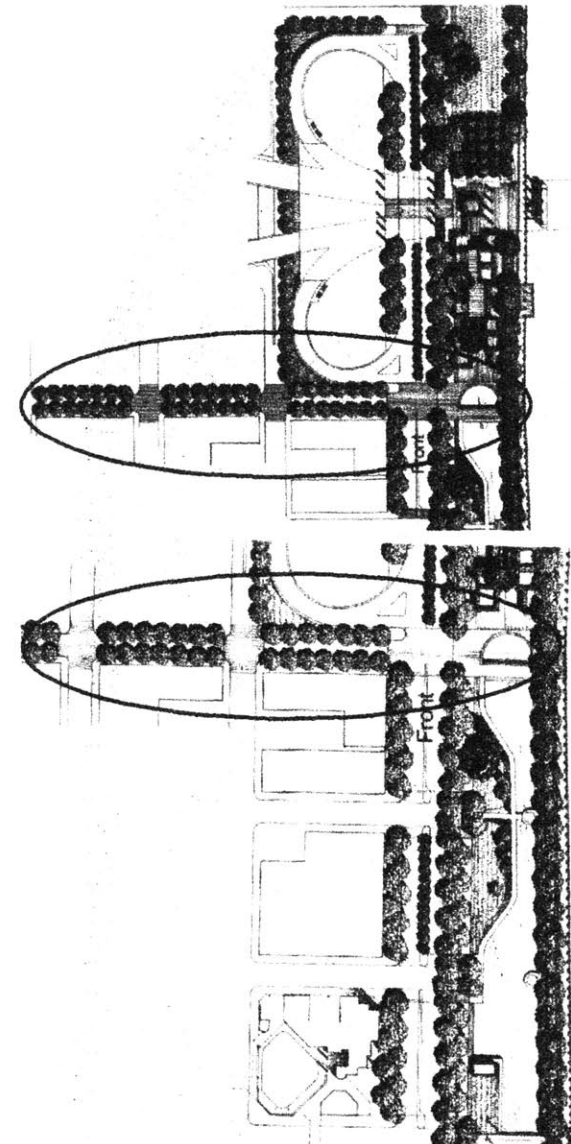
The genesis of this project is deeply indebted to the concept of connection. This is played out metaphorically and literally both in concept and final plan. The primary purpose of the park was to regain the connection between the waterfront and the urban core. The plan's desire was to pull those who lived and worked in the urban core out to the waterfront where they could enjoy the amenity. To achieve this physical connection, the plan gave particular consideration to the crossings on Front Avenue, which acted as a hard edge to the site: "The Front Avenue/Harbor Drive/Sea Wall edge is a highly significant barrier which must be effectively penetrated by pedestrian ways if the downtown core is to have access to and use of the Waterfront and the river."⁵ The Waterfront Study and the Final Plan both contended that a true

connection to the water could only occur by interface with it. The Waterfront Study proposed a potential set of steps that extended down into the water, mediating between the different heights of the river and park. The Final Plan does not achieve this literal connection, but attempts to recreate it through the installation of man-made ponds in the park. This solution was never constructed.

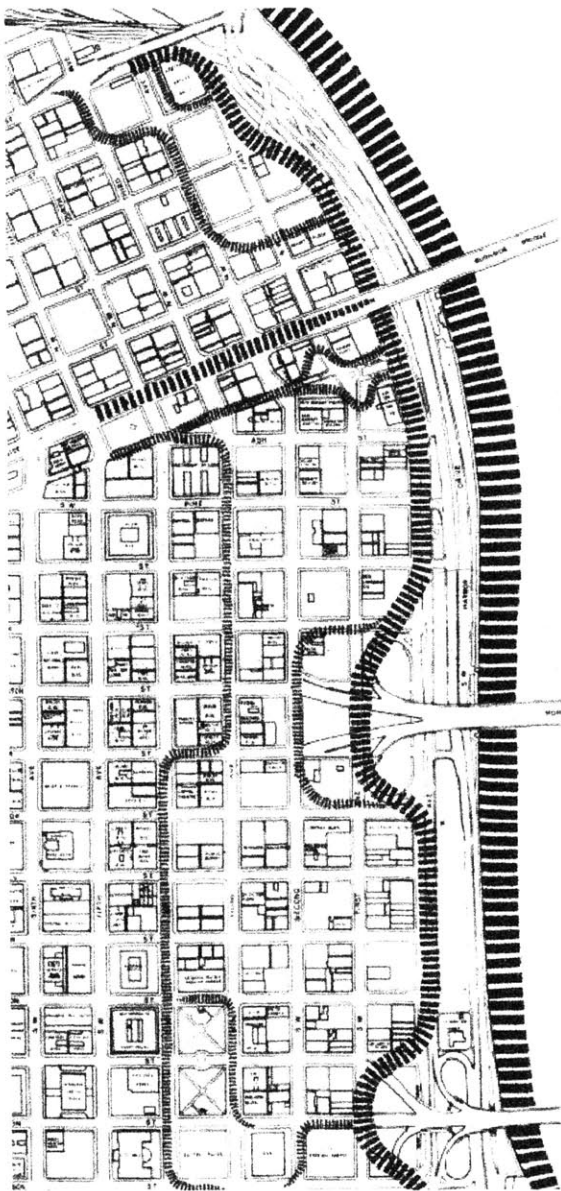
It was also necessary to connect each of the separate sections of park. The largest of these barriers occur from the divisions caused by the overhead highway and bridge crossings. The plan recommends that "consideration must be given to development which can create an organizing framework within each district and which relates to the whole of downtown, e.g., an overhead pedestrian network."⁶ While Pedestrian bridges were never built, numerous well-marked crosswalks help bridge Front Avenue, which is now Southwest Nato Parkway. Today the roadway sees far less traffic than in the 1970's, resulting in less of a barrier than was originally anticipated.

In the Waterfront Goals and

Objectives report, the Citizens Advisory Committee identifies a key to success as "good physical and visual access", which "should be, developed from the downtown to the waterfront and to the water itself."⁷ The report proposed that the two riverbanks should be visually connected, as well as connected via pedestrian and bicycle routes. In addition to those routes, they recommended that the plan "develop a network of trails, paths, walks, etc. which provide wide-ranging connections to all of downtown."⁸ The final plan includes a series of pathways within the park, but little was ever done to connect the adjacent riverbanks. The connections reaching into the urban core shown in the final plan (Figure 7) exist by figuratively extending the existing street grid as paved pathways into the park in some locations. While this does provide some continuity between the two conditions, the stub ends of the road that enter the park do not scale well with the park space. In addition, no visual cues were imbedded either through paving or signage that would create specific paths that were part of the Waterfront



(7) Connection is achieved through figuratively extending the existing grid into the park in the form of paved plazas. Source: Waterfront Study



(8) Downtown Portland Edge Condition Study.
Source: Waterfront Study

Park system. Thus, while the theory of connecting the city to the waterfront is successful, the practical connections do not improve upon or achieve the grander scheme of integration into the city's pedestrian network.

Edge Condition

The urban edge had developed into a pedestrian-unfriendly, car-oriented environment when this project was initiated in 1970. On the river side, the condition was consistent—a sea wall separated the shoreline from the river. On the city side, there were three districts suffering from urban degradation:

- *Northern district:* Bounded by the Steel and Burnside Bridges, it was home to warehousing, wholesaling and older hotels in poor condition. Thirty-one percent of the site was paved for parking. Fortunately, this area was rich with older buildings of historical heritage, and by 1970, some of the structures were being rehabilitated. Due to this, the area was gaining an

identity as 'Old Town'⁹.

- *Central district:* Extending from Burnside to Morrison Bridge, it was comprised of 17 full blocks, and seven partial blocks consisting of 21 buildings that were designated as historic landmarks.. Within the area was the historical Skidmore Fountain. As a result of this, the buildings in the area were generally of better quality. Nonetheless, the percentage of blocks being partially or entirely used by parking was 42%.
- *Southern district:* Lying between the Morrison and Hawthorne Bridges, it was composed of 22 blocks. The area was already seeing redevelopment opportunities come to realization due to several new commercial and public developments. Regardless, the percentage of vacant land was still almost a third.

Unlike many city planning ventures that do not extend beyond the project boundaries, this project took into consideration the surrounding area that few projects address. The planners

understanding of this edge condition lead them to expand the planning beyond the park to consider policy for adjacent districts called the 'Primary Benefit Area' (Figure 8). This is defined as the area "that would benefit most directly from the improvements on the Waterfront."¹⁰ The plan proposed mostly low-density office development, with several exceptions near bridges allowing for medium density development. By 1978, with the park as a catalyst, extensive construction had been completed on several office and historic rehabilitation ventures, most notably Portland General Electric's \$56 million headquarters complex located on Front Avenue.¹¹

The plan's concern for the edge conditions cannot be understated. With the park as a catalyst, the city's renaissance was accelerated, and directed. Portland has shown that planning for change throughout a city can leverage the effects of a highway removal project for overall downtown revitalization. This can only be done when policy measures are in place to ensure that the appropriate development is encouraged.

Morphology

At first glance Governor Tom McCall Waterfront Park does not provide much to offer in terms of morphology—parcelization is not an issue, as the park itself remains a singular parcel borne from the original roadway easement. Programmatically, the park remains an enigma, especially considering the broad range of concepts originally proposed in the Waterfront Study. Today, it exists as a narrow, grassy space along a river, primarily used by morning joggers, local employees and unstructured weekend activities. During the Rose Festival every year, the park becomes a fairgrounds. However, the park proposes a far more interesting notion of urban open space planning than is initially apparent. While the area as a whole has various planning concepts, few of them take large portions of the park. The plan proposes that this provides flexibility today and in the future. The plan articulates that open spaces are provided "to serve as a 'land bank' resource by providing space for future generations to introduce park elements."¹²



As an example, the final plan designates the space between the Burnside and Steel Bridges as 'primarily a reserve for the future'¹³. With this thinking in mind, the final report was divided into two segments—immediate implementation considered the 'three year plan' and a 'long range plan'. The specific role that the immediate framework plays in the life of the parks' creation is described in the plan's text:

"...the first phase of the Waterfront Park...will establish a strong framework within which development of the park can continue over time. The initial phase will determine the design concept for the Park; how the Park will connect to Downtown; the way in which the Park should related to Downtown redevelopment, the Urban Design Plan and the Downtown Plan guidelines. Of great importance in the three-



Waterfront Park consists of primarily unprogrammed open space, a popular amenity for joggers.

Boston's Big Dig—Identifying Signature Design Elements

The Boston Central Artery Corridor Master Plan produced by the Massachusetts Turnpike Authority is currently the defining document on planning efforts for the Rose Kennedy Greenway. In the Urban Issues Analysis Report, it identifies the key design elements for consideration:

- **History:** The corridor design should be used as a vehicle to recognize the historical legacy of the past.
- **Districts:** The program can enhance the existing surrounding neighborhoods, link districts and bring new users to the area.
- **Transportation:** The corridor will be a vital element in the City's downtown transportation network, providing new linkages between existing and future destinations.
- **People:** The artery should reflect the significant ethnic, cultural and age differences

year Development Plan, is that a significant portion of the Waterfront Park is reserved for later design and implementation. However, in conjunction with this type of 'land banking' strategy, it is also essential that the Park have a sense of completeness and an established landscape at any stage of development." ¹⁴

Thus, the park is an armature designed for future interventions.

This progressive theory contains strong benefits. Most developments of this type are taken over by the city and developed as a single site, resulting in a very homogeneous project that, despite its size, only has two to three 'big ideas'. This sameness can dull the project, denying it the rich texture that created the vibrant downtown districts that they're built within. In addition, the needs of today may be very different than those of tomorrow and

embodied in the each of the surrounding neighborhoods, while providing an important link between them.

- **Open Space:** The corridor will be an essential part of the City's regional open space network including Boston Harbor, the Emerald Necklace and other neighborhood open spaces. The area will become a contemporary symbol of civic identity and vision.
- **Building Context:** The edges of the surrounding buildings will make a series of 'urban rooms' that define the space.
- **Visual Analysis:** The corridor can be used to reestablish historic views, reveal landmarks and strengthen visual connections.
- **Urban forces:** To realize its full potential, the corridor must respond to urban forces both within and outside of the city.¹

¹ Boston Central Artery Corridor Master Plan: Urban Issues Analysis Report. Massachusetts Turnpike Authority, 2003. Pp 84-85

a singular development cannot accurately account for the future development needs or tastes of a community. The land bank strategy plans for these eventualities.

Today Governor Tom McCall Waterfront Park stands much as it did upon its completion in 1978. This observation demonstrates an immediate problem with the progressive 'land-bank' strategy. Once the park was completed in 1978, the city moved onto other projects. With money in short supply, the park was the site that needed the least attention, and thus received none. Ultimately, the failure of this concept lies in property rights issues. If the government had found a way to create several parcels that could have been subject to highly regulated private projects, the park may have seen the dense development that the long-term vision depicted.

Programming

Despite the fact that the plans' open programming was designed to allow for additions in the future, both the Waterfront Study and the Final Report

have extensive recommendations for possible future programs before the park was constructed. The suggestions were all presented in the form of nodes. Three types of nodes were studied and located: open space, commercial activity and community facilities. As an example, the park nodes consist of plazas at Main and Ankeny Streets, a commercial node exists at Morrison Street and a community node in the form of a boat moorage was planned to the south. The landscaped areas were to provide the common thread that connects all elements of the park, providing an overall identity that was greater than any one of the elements. The plan combined these three concepts into a hybrid scheme (Figure 9) that integrates the proposals.

The long-term plan began to explore the possibilities inherent in the future development of these nodes. Following the concept of 'land banking', planners were also cognizant of creating a flexible environment: "The area included in 'the waterfront' should be large enough to be flexible and useable, providing for the fullest range of activities."¹⁵ The end

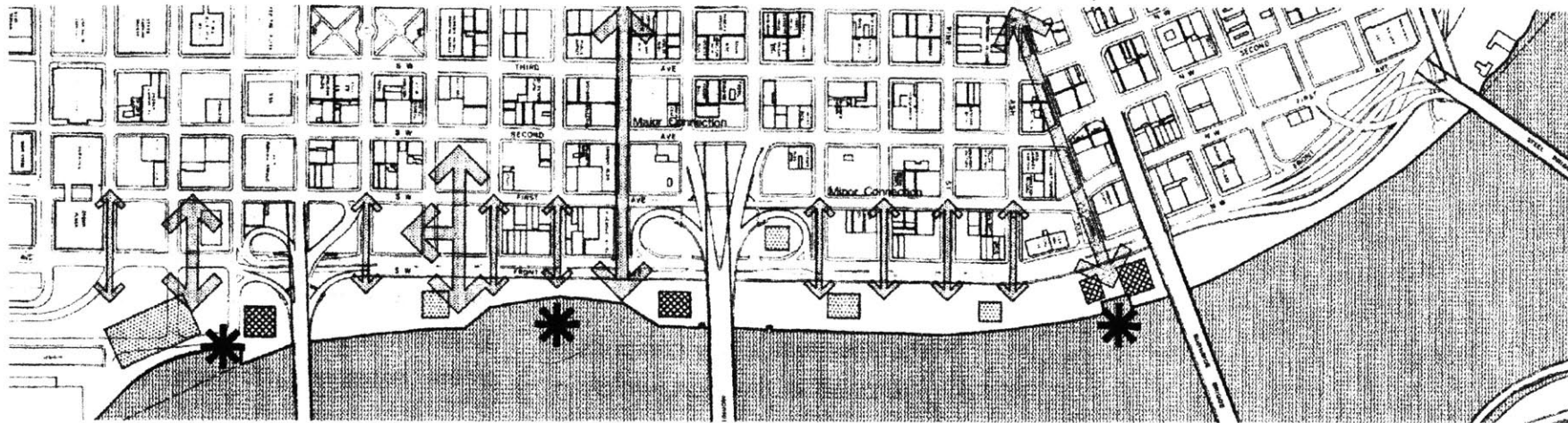
result of these two different stances is a library of ideas with no implementation.

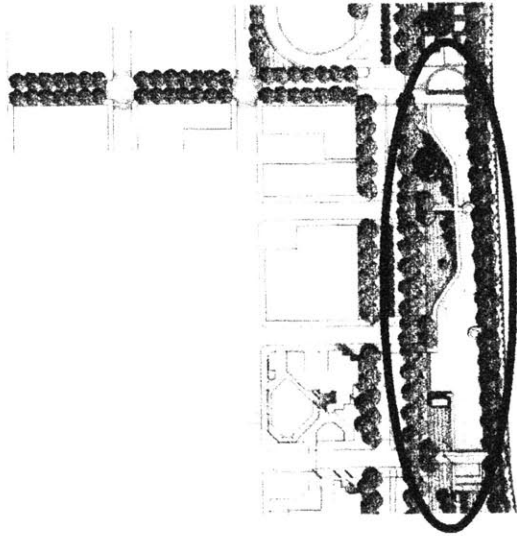
The plan considers six basic land uses: office, retail, entertainment, housing, industry and community facilities. The community facilities are intended for the waterfront park, while the other uses are primarily proposed for the 'benefit area'. By the time the Final Plan was produced, the recommendations were honed down to several ideas: an amusement area similar to Denmark's Tivoli Garden, a civic theater complex, hotel, moorage/historic ship site, sports courts and fields and community facilities such as an aquarium or museum.¹⁶ When this list was presented to the public, the general observation was that there were too many

specific activities, or too many spaces designed for a particular activity. Thus, the public championed a more flexible plan that could "accommodate a variety of uses and future needs which cannot and perhaps should not be anticipated at this time."¹⁷ The public did believe that commercial uses were necessary to draw people from the urban core to the riverfront. No consensus could be generated on where this activity should be focused, or the quantity of commercial businesses necessary to create this draw.

The specific programmatic elements proposed in the final plan were intended to be constructed in the Three-Year plan. A proposal that was ultimately

(9) The hybrid solution combines each of these separate elements into an integrated scheme. Source: Final Report: Downtown Waterfront Plan





(10) A Large proposed water feature. Source: Final Report: Downtown Waterfront Park

realized was a program of historic identification and marking that would help connect it to the historic sites in the downtown, as well as bring tourists into the area. An intervention that was never built was a proposal to construct several large water features (Figure 10) within the open space. The plan describes it as “an extensive linear lagoon of moderate depth for paddling, wading, sailing model boats, sitting and reflecting, etc.”¹⁸

Much of the unprogrammed nature of the park is a result of a planning department that could not receive universal consensus, and therefore omitted these items from the plan. In final analysis, the park would have benefited from less free space and more programmed moments. The ‘land bank’ system is fascinating in theory, and perhaps possible if regulated appropriately, but in Waterfront Park the system only became an excuse for doing nothing.

Regulation

Regulation was a key component not fully exercised in the plan, which in

combination with the general apathy around programmatic elements fostered an environment that could not realize the vision of a diverse urban condition. With the ‘land banking’ theory in place, the most important element the city needed to create was a system to regulate the future development. The plan is not clear on how the city would make judgements on these interventions, except to say that decisions would be made through a process of design review and conditional use regulations that applied to the whole of Downtown. They also recommended a set of incentives to encourage uses and treatments that would not occur under typical market conditions. While they wanted to allow the park to be an accretion of projects over many years, they did not propose specific guidelines for height and bulk limits, siting and use.

The plan did excel at understanding the surroundings, providing direction for the parcels at the edge. If developers had seen the opportunity inherent in the park (which they may have) the government would have been forced to create stronger guidelines that would

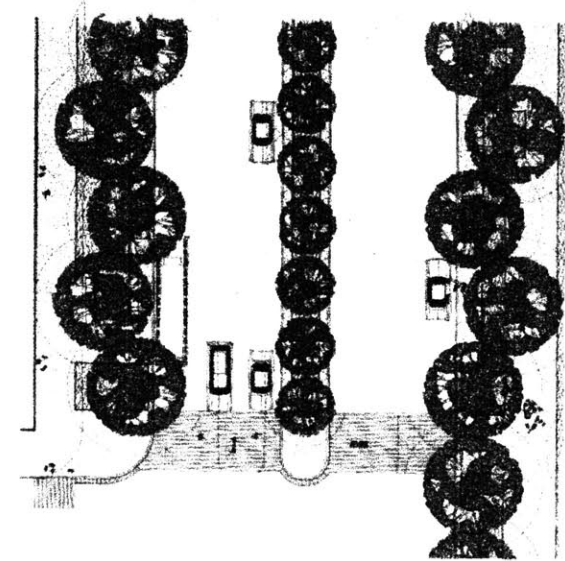
inform the boundaries of appropriate development. This stance could have resulted in either an embarrassing or confusing situation as the city decided what was best. Nonetheless, the city's indifference did nothing to promote the desired development.

Transportation

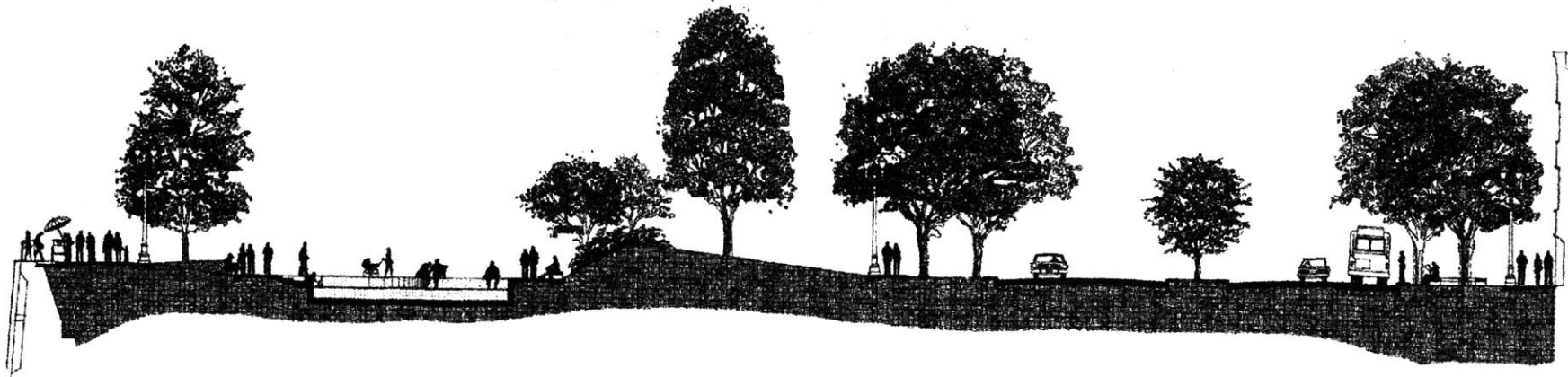
With concerns of connectivity between the urban core and waterfront, Front Avenue traffic was of primary concern. To alleviate this, and create a more pedestrian environment, Front Avenue was turned into a landscaped boulevard (Figure 11). This was a modification intended to change the

roadway from a major traffic street to a local access road. There were also proposals to add a shuttle bus route that would provide a connection between the waterfront and the 5th Avenue Transit Mall. This program would include bus shelters and two special transit stops in the urban core to ensure that there was easy access to the new park. To reduce the number of car trips to the park itself, the plan included no parking except for two lots designed for the future commercial expansion and existing park facilities.

Downtown Portland is small, and therefore extensive public transportation routing was not necessary. The conversion of Front Avenue presented an interesting opportunity to integrate a more permanent waterfront transit line than the



(11) Front Avenue is redesigned as a tree lined boulevard. Above, plan; below, the roadway's sectional relationship with the park and waterfront. Source: Final Report: Downtown Waterfront Plan





(12) Front Avenue remains lined by under used lots. This lot adjacent to the park is typical—a surface parking lot that is not utilized during the work week.

proposed shuttle route. Portland already has a strong streetcar presence in their existing downtown system. If the system had been extended into the middle of the remade boulevard, Front Avenue would have become more pedestrian, and therefore a better connection between the park and urban core.

Property Rights

Ownership of the land was divided between two governmental groups—the City of Portland and the Oregon State Highway Department (OSHD). Upon demolition of the roadway, the easement reverted to City-owned land, thus making the entire area public. The Waterfront Plan is an example of a municipality not doing enough with ownership and property rights to encourage desired development. The

Waterfront Study suggests that “public improvements should be paid for with revenues derived from selected sale or lease of public land for private development and/or tax increment financing.”¹⁹ With the tremendous concerns over funding issues, the city had an opportunity to add new parcels to the tax base that could also generate revenue. In addition, these parcels could have contributed to the long-term growth of the park programmatically by adding new activity nodes. If the City had proactively identified and created a parcelization scheme for the site, private development would have been able to enter into the armature, thus providing the revenue and activity necessary to support future public improvements.

(13) The new waterfront masterplan includes a revamped Waterfront Park with increased programmatic elements.. Source: Waterfront Park Masterplan.



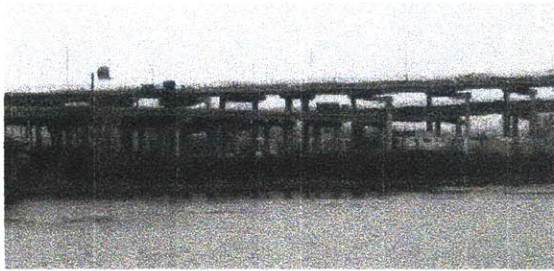
Conclusion

Governor Tom McCall Waterfront Park was the first entrant into the roadway reclamation typology. Despite its nascent understanding, planners who created the park produced several progressive ideas. Amongst those is the land banking theory. By leaving a completed, yet blank urban canvas, they allowed opportunity. Considering the relatively dense, vibrant downtown that Portland is today, an argument could be made that the needs of the city are embodied in an unprogrammed greenspace. It provides a place for the city to breathe; its inactivity is a suitable counterpoint for the bustling downtown core directly adjacent to it. Thus, after almost 30 years, the results have shown that the intervention was largely successful. The open space approach has provided an important interface between Portland's downtown district and the river that once served it.

Looking at the park and its surrounding conditions today also reveals that some level of development may be necessary. Currently Naito Parkway

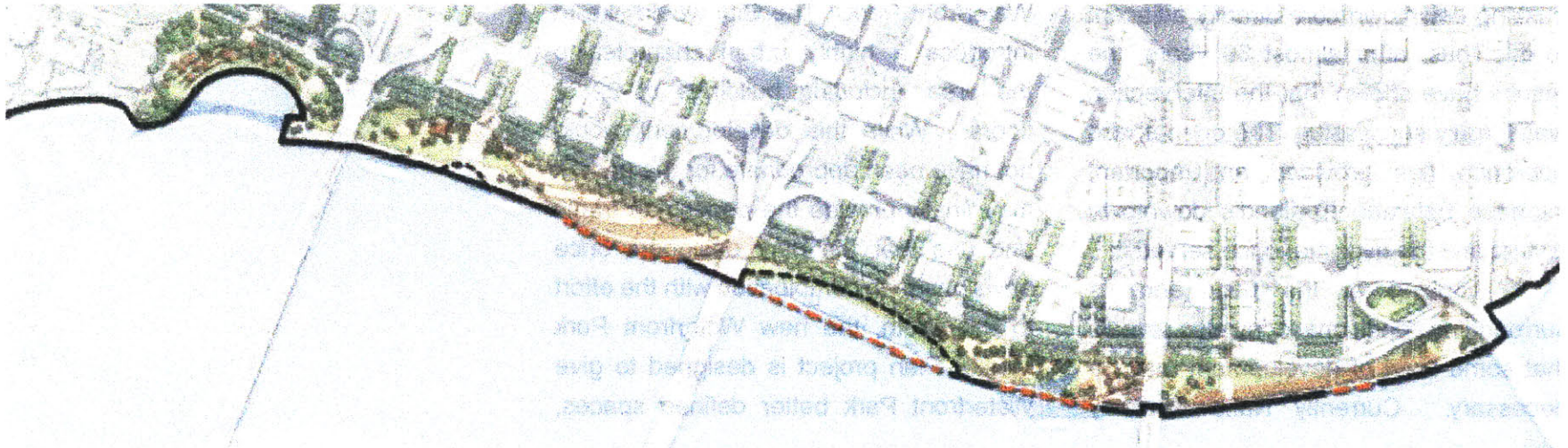
(Front Avenue) is lined with park on one side, and intermittent built fabric on the other (Figure 12). While the original park spurred development at the time, a series of surface parking lots still remain. The backs of several buildings continue to face the park. This suggests that the park alone was not a suitable catalyst.

Fortunately, after 25 years, the south end of the park is beginning to receive consideration for higher density development. The South Waterfront Plan directly abuts the southern boundaries of Waterfront Park. Included in the plan is a mix of office, industrial, residential and retail uses integrated into a greenway system that includes the existing Waterfront Park. The City would like to introduce a highly urban character to the area, including buildings of 22-32 floors. While this development would not have been appropriate for the park, it may finally provide the pedestrian traffic and use that the park designers once envisioned. In combination with the effort to the south, the new Waterfront Park Master Plan project is designed to give Waterfront Park better defined spaces,



(15) Interstate 5 stands directly across the river from Gov. Tom McCall Park.

(14) Several proposals have recommended drastic cuts into the existing park, allowing new inlets. Since the original planning of the park, designers have been interested in bringing water to the site.. Dotted lines represent the old sea wall, solid lines represent the proposed changes. Source: Waterfront Park Masterplan.



improved circulation and additional program elements (Figure 13). Several iterations of the Waterfront Master Plan have suggested large cuts into the park, redefining the waterline (Figure 14).

It would be impossible today to propose new private development, as the residents of the city have grown to love the broad open spaces. For this reason it is important for planners to regulate their vision at the outset of the project so that it is not forgotten. Ironically, directly across the Willamette River from Waterfront Park stands Interstate 5 (Figure 15), or the eastern Expressway, which was built on the opposite bank in the early 1960's. The maze of roadways that

composes the interchange dominates the landscape and completely blocks any access to the eastern waterfront. While advocate groups have designed schemes for its replacement, the government has not taken an active role in realizing a vision. With renewed success from the redevelopment of Waterfront Park and the South Waterfront Plan, perhaps Portland will finally attempt to tackle the highway that looms above its eastern shore.

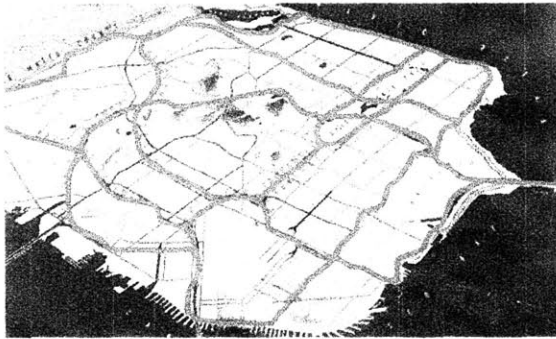
- ¹ *Waterfront Study: Phase 1 Report*, p10.
- ² *Gov. Tom McCall Waterfront Park*.
- ³ *Waterfront Study: Phase 1 Report*, p 41.
- ⁴ *Ibid.*
- ⁵ *Ibid.*, p 39.
- ⁶ *Ibid.*
- ⁷ *Waterfront Study: Citizen Advisory Committee, Waterfront Goals and Objectives*, p 8.
- ⁸ *Ibid.*
- ⁹ *Ibid*, p 37.
- ¹⁰ *Ibid*, p 36.
- ¹¹ *Completing the 2nd Decade: A Progress Report*, p 3.
- ¹² *Final Report: Downtown Waterfront Park, City of Portland, Oregon*, p 14.
- ¹³ *Ibid*, p 15.
- ¹⁴ *Ibid*, p 38.
- ¹⁵ *Waterfront Study: Citizen Advisory Committee, Waterfront Goals and Objectives*, p 8.
- ¹⁶ *Final Report: Downtown Waterfront Park, City of Portland, Oregon*, p 39.
- ¹⁷ *Ibid*, p 47.
- ¹⁸ *Ibid*, p 33.
- ¹⁹ *Waterfront Study: Phase 1 Report*, p 42.

The transit corridor typology represents a logical transformation of an existing transportation corridor into a multi-modal transportation node. With the surrounding fabric already accustomed to a primary transportation artery in a given location, this proposal recommends using the corridor as a new surface transit hub by inserting public transit and surface roads. The case that most clearly represents this type is also the case that was most frequently cited prior to the rise in public awareness of Boston's Central Artery/Tunnel project. San Francisco's Embarcadero Freeway is probably best remembered for its untimely demolition—the 1989 Loma Prieta Earthquake, which was aired on national television during the World Series. The quake irreparably damaged the Embarcadero Freeway and caused more notable collapses on the Oakland Bay Bridge and the now infamous Nimitz Freeway in Oakland. The latter example put cities with elevated highways on notice. This highway collapse was especially critical for those cities in high seismic zones. No longer are the appearance, pollution and other secondary effects the worst trait of these roadways; the specter of collapse, either through earthquake or deterioration made all other problems pale in comparison.

Chapter Five

Transit Corridor Typology

The Embarcadero

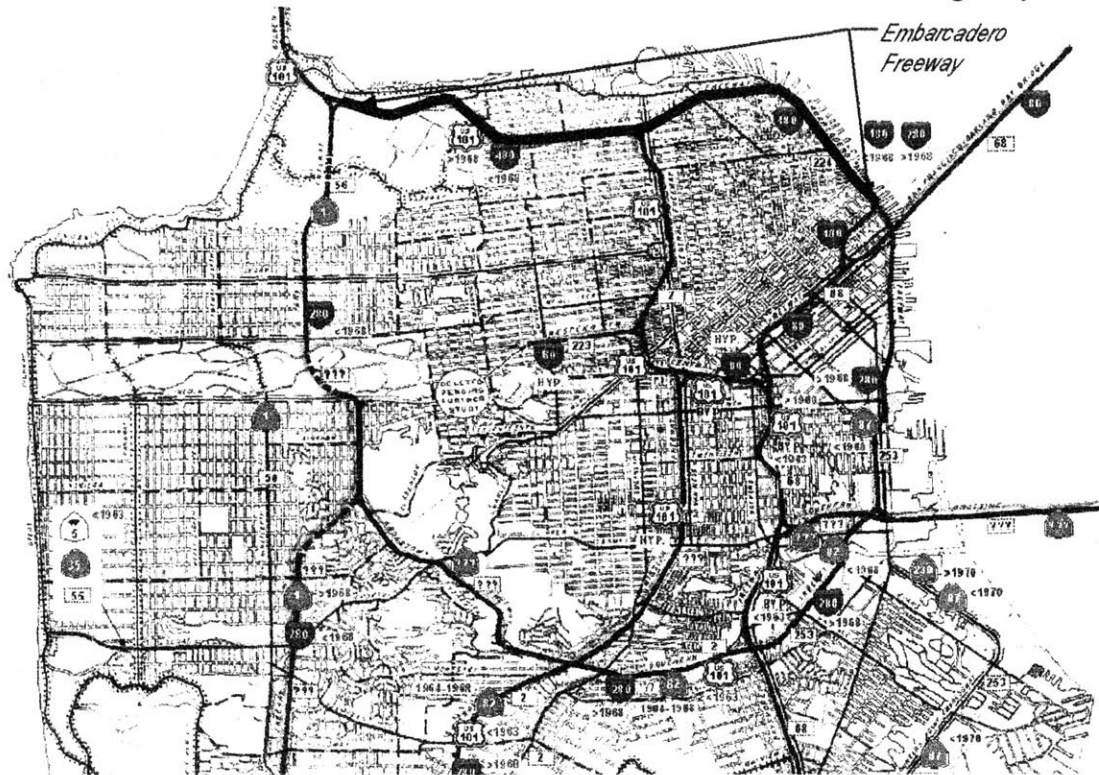


This 1947 concept plan shows a web of highways covering the city in all directions.

(1) This 1955 plan shows a proposed web of highways, similar to the 1947 concept plan.

History

San Francisco's freeway history is fraught with battles. Politicians and engineers spent years trying to successfully push proposals through that would create a web of highways across the city. Several of these options are presented on these two pages. The most frequent desire was to connect Highway 101 from the south with Highway 1/101



at the Golden Gate Bridge. To achieve this, engineers believed the best solution was to create a waterfront expressway that extended from the Bay Bridge to the Golden Gate. This concept became a serious proposal, and eventually construction began. The full 1965 plan (Figure 1) did not just provide for a single highway along the waterfront, but for a web of highways that took up a substantial part of the north peninsula area. In 1966, the plan was altered to include a highway built over the water to avoid using valuable city land.

The sight of these plans caused the public to create a revolt that ultimately was responsible for being the catalyst for others around the nation. Unfortunately, by the time residents were able to finally put a stop to the city's plans with the freeway revolts of 1959 and 1966, the first segment of Interstate 480 had been constructed. Instead of continuing high above the waterfront, the highway was brought down to ground level; traffic was dispersed into the existing city grid. While this was a substantial victory for I-480 opponents, the damage had been done.

The highway had made it far enough to create a barrier between the city and one of its more notable landmarks, the Ferry Building. In addition, to achieve desired connections, I-480 used long, snaking off-ramps, some over a mile in length, to reach far into the city grid (Figure 2). The most notable of these is the Octavia Street off-ramp. Its intrusion into the urban fabric destroyed a swath of land no less considerable than that of the highway itself.

For years Interstate 480, better known today as the Embarcadero Freeway, stood as a warning to engineers who thought that traffic congestion issues were paramount to all other issues a city faced. Ironically, when the Loma Preita quake ravaged San Francisco, immediately truncating its primary means of access, traffic was no worse. Commuters changed modes of travel from cars to public transit and altered their commuting times. This lesson serves as an important example of traffic elasticity.

The creation of today's Embarcadero now stands as an example of an elevated highway removal

success story. Without the quake, the Embarcadero as we know it today would never have come to fruition. Prior to the earthquake, San Francisco's Department of Public Works prepared a masterplan for the area that proposed removal of the highway structure. In this final report, the study clearly suggests that the roadway should be removed altogether:

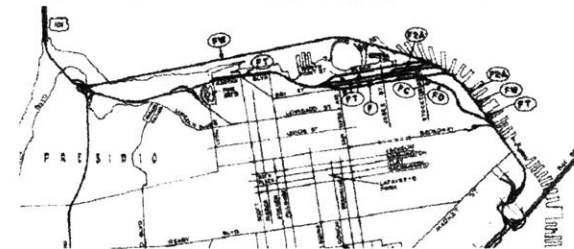
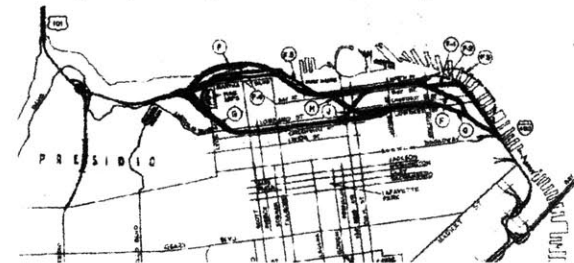
"There is still significant, if minority, support for complete removal of the Route 480 structure. From a purely visual and pedestrian perspective this is by far the best alternative, but without substantial public support this approach will not be possible."¹

The strongest group arguing against complete removal of the roadway was local business owners in Chinatown, claiming that revenues would decrease as access became more difficult. While the 1988 plan produced strong graphics that brought the proposal to life, those opposing the removal proved impossible to defeat.

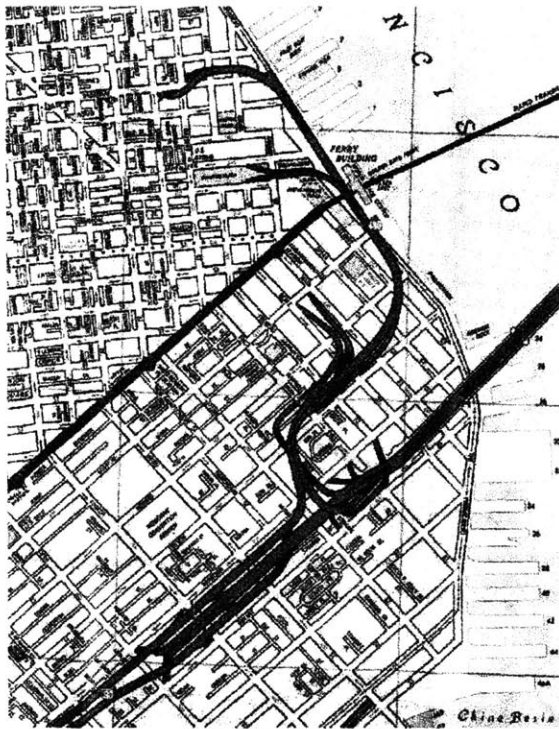
After the 1989 quake, it would seem that this was no longer an



This pared down version from 1965 still contains numerous highways through the center of the city.



Two possible routing plans for a highway connecting Interstate 80 with Highway 1/101 and the Golden Gate bridge. The bottom version recommends constructing the highway in the bay.



(2) Snaking offramps often did as much damage to the urban fabric of San Francisco as the highways themselves.

issue. However, local business owners immediately took up a fight to repair the damaged roadway. The fight lasted for more than a year. Finally, the city government, seeing growing public support for full removal, decided to push on despite the arguments of merchants. The 1988 plan was once again brought to the forefront. Today, the Embarcadero is built essentially as this plan proposes, using a hybrid of two schemes presented in the documentation. Nonetheless, even this implementation was hard-fought. In 1993, an urban watchdog group along with local businesses was concerned with the proposed plan. Lead by the Center for Critical Architecture/2AES, the group organized an international competition to elicit new ideas for the Embarcadero plan. The Embarcadero Waterfront Competition not only attracted 217 submissions, but also provides additional insight into the typology through the entries and the competition brief. The project organizers understanding of the problems are similar to those identified in this thesis:

“...the San Francisco Embarcadero/Waterfront, the city’s

historic frontispiece, is an area more notable for what is absent than what is present. The decline of the shipping industry has left its mark in remnant rails, pier pilings and decaying port buildings—each serving as a constant reminder of what is no longer there. Recent earthquake damage, prompting the removal of the Embarcadero Freeway structure, has created the most conspicuous absence. The structure remains latent in the landscape in the altered forms of adjacent buildings, streets and public spaces.”²

It is this absence that the project typology must reconcile—not erase, but illuminate through intelligent design and programming.

The competition book prepared at the completion of the project generated a basic conceptual mindset for this project typology:

“The Embarcadero Waterfront Competition, in its call for poetry and vision, must be seen in terms of this attempt at transforming the subversive beauty of the water’s edge into a manageable part of the city. The competition

was meant to spur the city to reimagine its edge as a collective experience, and there are really only three ways in which a public experience could take place: through commercial activity that serves as a magnet for shopping crowds; through public open spaces or promenades paid for by a lesser degree of commercial development; through completely public parks, which replace the commercial nature of the city with a public terrain that remains purposefully open, but productive as a place of recreation or cultural enrichment.”³

When reviewing the submissions, the group cited three approaches:

- *The urban square.* These submissions had the “elegance of nineteenth-century cities”⁴. The jury enjoyed these solutions because they ‘tamed’ the forces of commercialism that would “inevitably control the future of the Embarcadero”⁵. The inclusion of large squares would ensure that openness always existed.

- *The visionary project.* These proposals recommended drastic programmatic uses that would provide a new reading of the space. Amongst these project proposals were new wild areas, canals, tidal platforms, floating gardens, greenhouses, wind generators and a desalinization plant. The jurors called this approach ‘creating a zone of revelation’. In these places, “people would become aware exactly of the difference between the density of the city and the endless horizons it was trying to harness...”⁶ However exciting these proposals appeared to be, the jury did not, in the end, find these ideas particularly successful, as they created the equivalence of a ‘politically correct theme park’.
- *Solving the waterfront.* The jury’s characterization of this concept is a planned framework:

“They included those schemes that recognized the waterfront as a scaffolding where the collage of every day life can hang its messy, smelly occurrences like so many layers of barnacles clinging to the decaying

urbanship. These schemes recognized only that it is the uncontrollability and messiness of the waterfront that are its greatest strength, but also that the task of architecture, planning, and landscape design is no more or less than to provide an arena in which the rules and activities of the city are allowed to go frayed and wash back up upon themselves.”⁷

The preface to the competition book concludes that the most exciting submission was one that was so radical that it deserved consideration simply for its desire to slow the destiny of what many believed the Embarcadero should become. A brief survey of the recommendations include the following concepts:

- Numerous ships are recommended along the waterfront, in-between each of the wharves. These could be refurbished and used for any number of programs. If not a permanent solution, they provide an exciting interim solution that activates the waterfront.
- A series of cultural plazas create a unifying series of spaces that are in character with the San Francisco. The jurors considered this proposal the creation of a framework on a Roman scale.
- Temporary movable barges, each with a different program, could be removed or moved to create smaller or larger spaces. The project also envisioned the waterfront wharf district as an island, with the corridor being transformed into a canal.
- A canal that cuts through the city along the same line as the original shoreline recalls memory and connection.
- A continuous beach extends the length of the site, with several interruptions by existing wharves. Most wharves would be removed.
- A new sectional relationship with the bay drops the Embarcadero 30 feet below sea level, creating a continuous waterfall edge.

- Decommissioned aircraft carriers are docked and adaptively reused as research centers.⁸

None of these unique design solutions were added to the final plan.

Collectively, the efforts of the competition, previous plans and final plan resulted in a very popular urban space that has become one of San Francisco's more iconic places. Since the final product essentially was born from the 1988 urban design study, this is the document used in evaluation of the project. Its depth of consideration provides a great deal of insight into the basic intervention and the theories behind the choices.

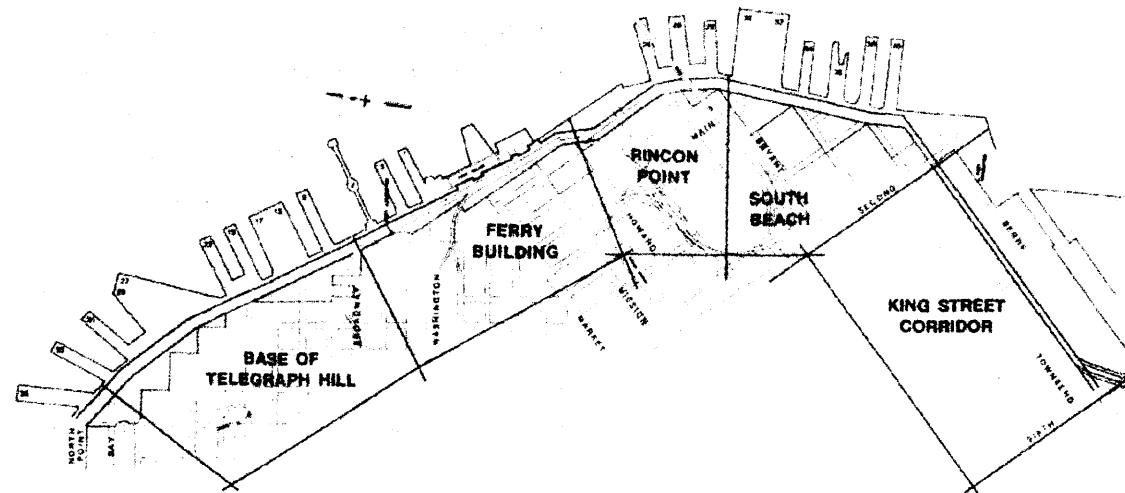
Design Concept

The initial planning process addressed the site not as a single district, but as five separate adjoining sub-areas (Figure 3). The plan specifically states that this is done because "the study area is comprised of several smaller

neighborhoods, each with unique geographies and characteristics...meriting individual design consideration."⁹ These designated sub-areas provided an initial armature upon which specific activity areas could be designed around the context of the adjoining built fabric. In 1988, the fabric in the southern portion of the site was industrial and unattractive, while the northern site was similar as it is today—the edge of an active tourist district.

The plan then proposed two conceptual alternatives in creating the overriding framework that would govern the proposal. The first concept, 'a roadway in a park', recommends that

(3) The Embarcadero Plan divided the redevelopment area into five separate districts. Source: *The Embarcadero Urban Design Study*.



the Embarcadero compliment its unique sense of place with “separate, but unique and related smaller areas with discrete geographies and uses.”¹⁰ Existing open spaces can be used in combination with the linear park to create larger spaces that compliment the individual sub-areas. Thus, the character of the corridor will change depending on the adjacencies—whether it is closer to an area of density and hardscape such as the Ferry Building, or near less programmed landscaped areas.

The second concept was labeled ‘the boulevard versus the park corridor’. This idea institutes the well-known urban design typology of the boulevard, converting the current Embarcadero into a traditional roadway form. This linear system is intended to provide symmetry in an asymmetrical site with the waterfront on one side and city on the other:

“The Embarcadero possesses a unique configuration formed by the intersection of the angled city grid with the curving edge of

The Rose Kennedy Greenway—Driving Principles

In an attempt to bring broader discussions to the table, a number of independent organizations have commissioned planning studies for different parts of the Rose Kennedy Greenway. The Artery Business Committee has hired independent architects and planners to provide direction for the land that lies between parcels 12 and 18, near the financial district. The Wharf District Working Group has identified five principles that govern the design of the space:

1. Reinforce the character of the Wharf District - liberating the Central Artery parcels from their definition by the interstate.
2. Reconnect the city with the harbor - establishing the physical guidelines for development between the city and the waterfront.
3. Support and surround open space with people and activities - establishing the

the Bay. The resulting boulevard is asymmetrical, in contrast to a traditional boulevard, and merits a specialized, responsive design approach. A boulevard is by definition a linear system, featuring a rectilinear thoroughfare bordered on either side by balance building masses and sidewalks. Side streets typically bisect the boulevard at uniform 90-degree angles.”¹¹

plan calls these lots, ‘outdoor rooms’, designed to enhance the value of surrounding parcels through linkages with other outdoor plazas and parks along the corridor, creating a unified greenway and roadway system.

These two proposals shared the same conceptual framework: a central surface street connecting varying amenities through a central landscaped spine. One of the primary differences between the two schemes was the orientation of the existing streetcar

This approach proposes a new type of boulevard—one which reaches beyond the streetscape, into adjacent lots. The

scope of social and economic activities for a successful public realm.

4. Create a pedestrian friendly environment - taming the effects of the interstate on the city and populating the sidewalks with people.
5. Ensure a high quality and viable public realm - outlining possibilities for public and private cooperation in creating a well-maintained public space.¹

Within these principles, they hope to foster a series of concepts that can be condensed into urban, social and environmental goals. Ironically, non of these concepts reflect the current design schemes produced by the city that propose a strong transit presence in the corridor. Nonetheless, these goals provide the backbone for the planning interventions that lead to the creation of their recommended development plan.

¹ boston.com/beyond_bigdig

system. Only the boulevard scheme recommended relocating light rail to the Embarcadero, allowing a secondary means of connection along the waterfront. The final recommendation used the boulevard plan with the transit line on the city side of the Embarcadero roadway. When the project was constructed, the transit line was constructed in the roadway's median (Figure 4).



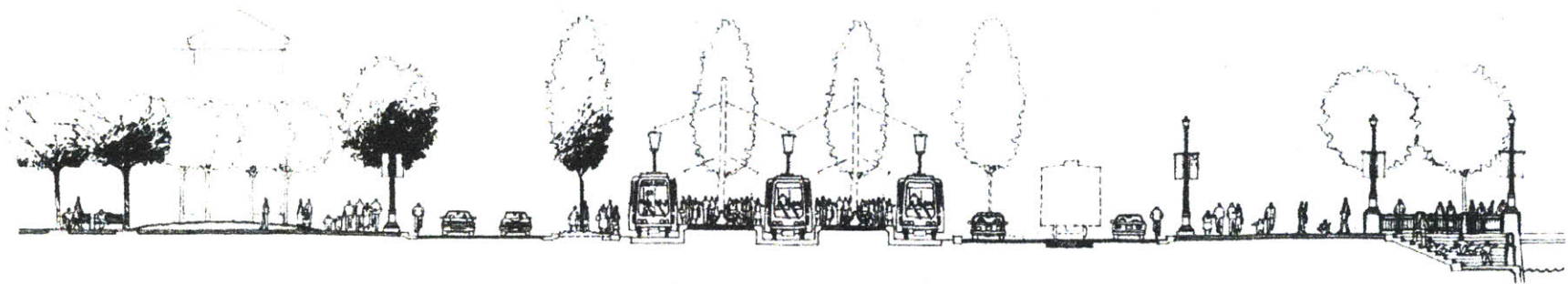
(4) The transit line was relocated to the center median of the boulevard. The section below articulates the relationship between pedestrian, roadway and waterfront. Source: *The Embarcadero Urban Design Study*.

The transit-oriented center boulevard concept is a typology that resulted in a highly successful series of connected urban spaces. The plans' decision to reshape the existing surface boulevard and extend it onto the freeway site took advantage of the existing infrastructure and surroundings. However, the wide roadway completely dominates the space, although its landscape design successfully diffuses its appearance. If

adjacent open space opportunities had not been available, the plan would have added little to the corridor. With the plazas and parks already in place, the concept of creating a landscaped, connecting spine realized an exciting opportunity that brought life back to the waterfront.

Connection

With the primary design concept revolving around connection, this principle is paramount in understanding the space and its purpose. Connecting the tourist-oriented Fisherman's Wharf area with other destinations along the edge of the city created a new opportunity to activate the waterfront. This also created an important joining of the sub-areas: the central transportation spine acts as a literal connection and a common thread that runs



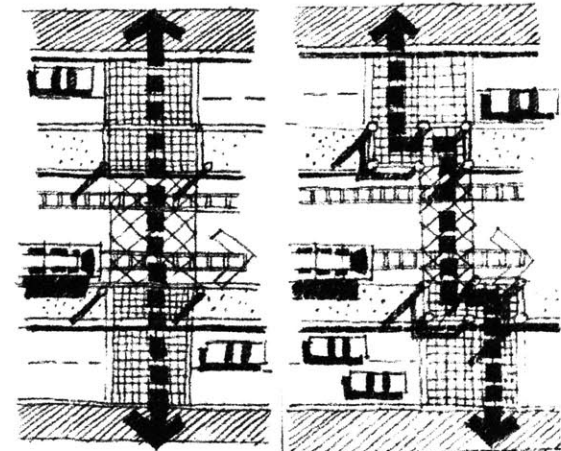
through each area, tying them together. By realizing the potential of relocating a primary transit line down the center of the reshaped boulevard, planners integrated this new waterfront spine into the city's infrastructure system.

While the plan is successful in realizing its primary goals of longitudinal connectivity, the secondary means of connection fall short of realizing a successful vision. Only briefly does the plan speak of reconnecting the city with its waterfront, possibly because San Francisco already had numerous places of connection such as Crissy Field, Fisherman's Wharf and the Presidio. However, all of these locations lie along the northern peninsula, away from the vibrant downtown. The boulevard approach creates a wide roadway, especially with the additional width necessary for the double transit line in the median. The plan attempted to alleviate this issue through a carefully considered system of crosswalks. They developed two mid-block crossing designs, one that jogs vertically along the median, another that makes a direct connection. The Z

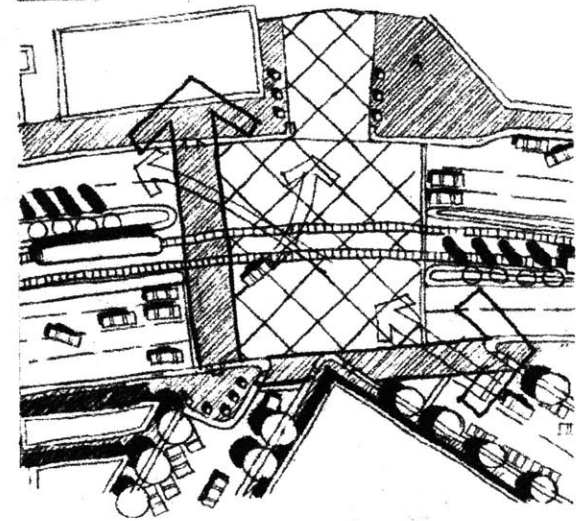
mid-block crossing, used in locations where pedestrian must cross the active rail line, is designed to force pedestrians to look toward oncoming trains. The intersection crossing is achieved with a similar direct connection (Figure 5). Crossing the Embarcadero can still be a daunting task during rush hour, or on weekends when traffic is heavy. The roadway also creates a strong visual separation. This is a tremendous missed opportunity; San Francisco has one of the great waterfronts in the United States, as such, the design should have made this connection paramount.

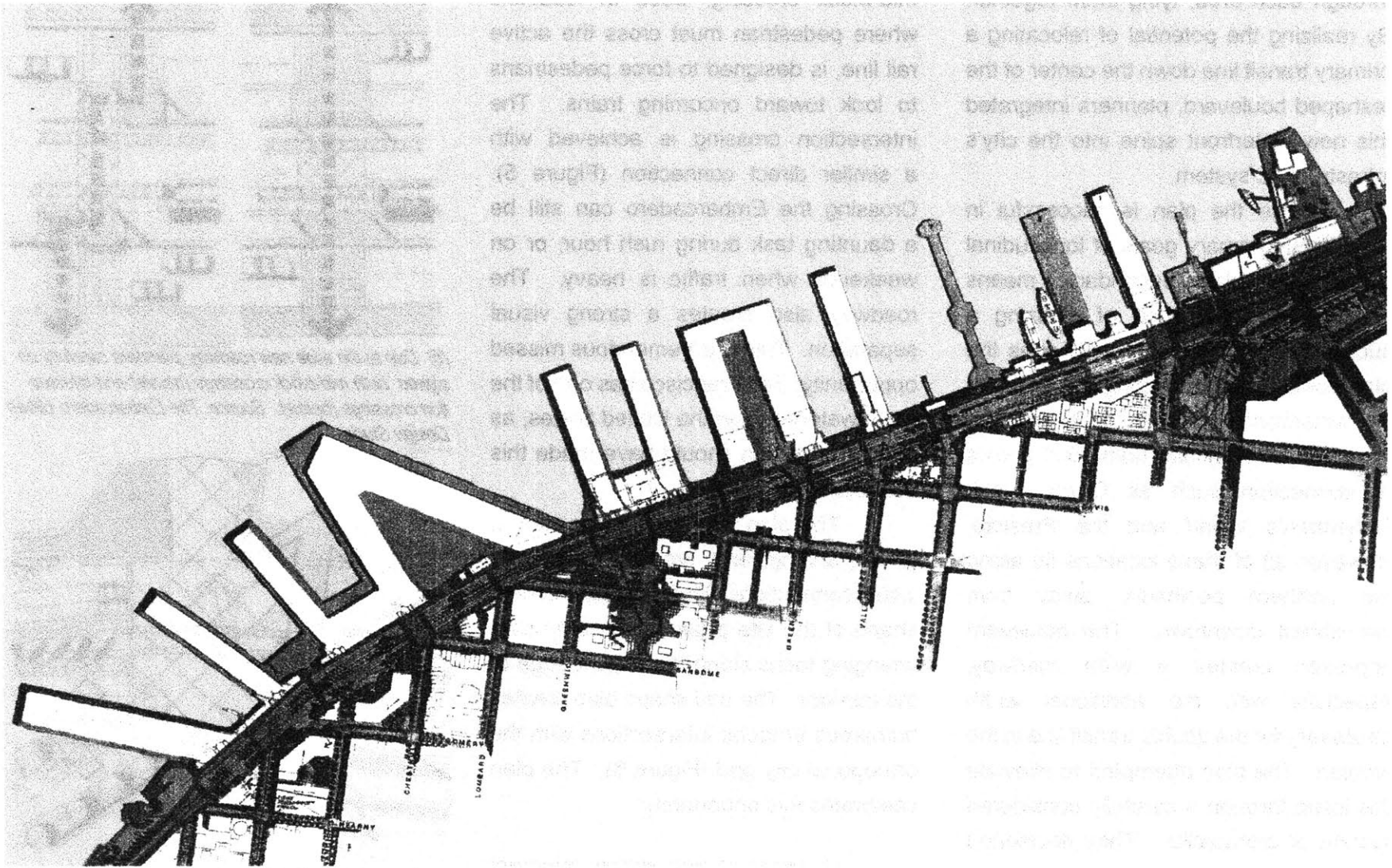
The plan takes particular care in understanding and creating numerous visual connections. The irregular crescent shape of the site produces a continually changing focus along the distant edge of the corridor. The odd shape also creates numerous irregular intersections with the orthogonal city grid (Figure 6). The plan celebrates this opportunity:

"A series of side streets intersect the Embarcadero roadway. These streets form bulkhead building view corridors, and additionally

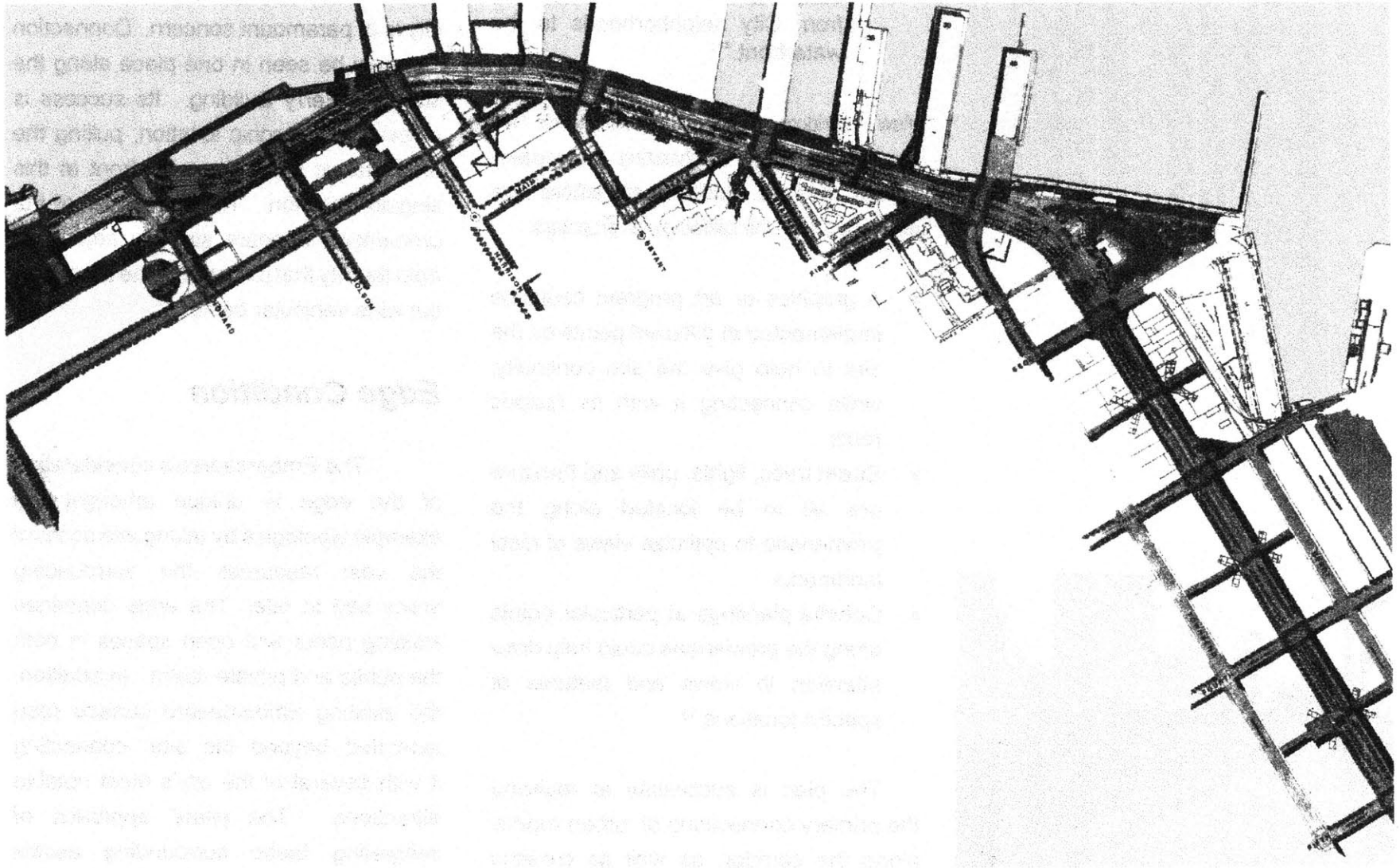


(5) Due to the wide new roadway, planners carefully designed both mid-block crossings (above) and intersection crossings (below). Source: *The Embarcadero Urban Design Study*.





(6) The Embarcadero Plan is highlighted by a primary roadway that follows the organic shoreline. When this crescent shape meets the orthogonal grid system, a series of odd triangular lots are created.



Edge Condition

The importance of the edge condition of the edge is a key factor in the design of a structure. It is the point where the structure meets the ground or another structure. The edge condition is critical for the stability and safety of the structure. It is the point where the structure is most vulnerable to failure. The edge condition is also the point where the structure is most exposed to environmental factors. The edge condition is a key factor in the design of a structure. It is the point where the structure meets the ground or another structure. The edge condition is critical for the stability and safety of the structure. It is the point where the structure is most vulnerable to failure. The edge condition is also the point where the structure is most exposed to environmental factors.

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serve to establish connections from City neighborhoods to the waterfront."¹²

View corridors specific to landmarks are persevered through emphasizing the roadway through landscape. Additional connections were recommended in the following plan proposals:

- A graphics or art program could be implemented at different points on the site to help give the site continuity, while connecting it with its historic roots.
- Street trees, lights, polls and furniture are all to be located along the promenade to optimize views of local landmarks.
- Colorful plantings at particular points along the promenade could help draw attention to views and features at specific locations.¹³

The plan is successful at realizing the primary connections of 'urban rooms' along the corridor, as well as creating strong visual connections within the site and the surrounding environment. Its failure to adequately recognize and create

a connection between the waterfront and city is of paramount concern. Connection can only be seen in one place along the site—the Ferry Building. Its success is a result of its iconic location, pulling the urban fabric up to the waterfront at this singular location. The remainder of the promenade appears strongly separated from the city that it serves by the attractive, but wide vehicular corridor.

Edge Condition

The Embarcadero's consideration of the edge is unique amongst the example typologies by taking into account the vast resources the surrounding areas had to offer. The edge contained existing parks and open spaces in both the public and private realm. In addition, the existing Embarcadero surface road extended beyond the site, connecting it with several of the city's most notable attractions. The plans' approach of integrating these surrounding assets was clear from the introductory pages: "Piers, public and private properties and open spaces bordering the roadway



(7) One example of an underdeveloped urban room. This triangular lot remains a surface parking lot, more than a decade after the projects' completion.

are additional study area components which impact the projects and contribute to the Embarcadero corridor.”¹⁴ These spaces were created by extending the city grid to the new Embarcadero. This resulted in a number of triangular or oddly shaped spaces that had little potential for development, as seen in Figure 6. These spaces also became ‘outdoor rooms’. While program varies, their location was always the same—at the interface between site and city. Today, despite the consideration given to the ‘urban room’ system, any connection between the surrounding fabric and the site is difficult to find. The only place where connection is evident is at Justin Herman Plaza and the Ferry Building.

The numerous triangular ‘rooms’ either remain vacant or have been made into surface parking lots (Figure 7). This lack of any hard edge along the roadway creates an uneven condition. Thus, the system of using adjacent parcels outside the site area is an intelligent way to expand the possibilities of the project, but it fails in execution as numerous sites remain at a low use, denying connection

to the site. In many cases it appears that the city backs up to the Embarcadero.

The waterfront edge is an entirely different condition that elicits a far less thoughtful approach. The majority of this edge consisted of existing historic wharf buildings. These structures were attractive, but not active. Many of them were home to warehouse functions, or small businesses. Today, with a decade of development, only several of the bulkhead buildings take advantage of the location through restaurants or other amenities that are capable of capitalizing on the view and the pedestrian path. Between the piers lie only a railing and occasional seat at most locations. The City has recently attempted to bolster activity by taking advantage of the location through a newly built public pier and skate park. There is no doubt that the existing pier orientation makes redefinition of the edge condition difficult, however by not doing more to activate the piers either through ownership or regulation, planners missed a critical opportunity on the site. The walkway that stands in front of the piers is a wide pedestrian thoroughfare, traveled

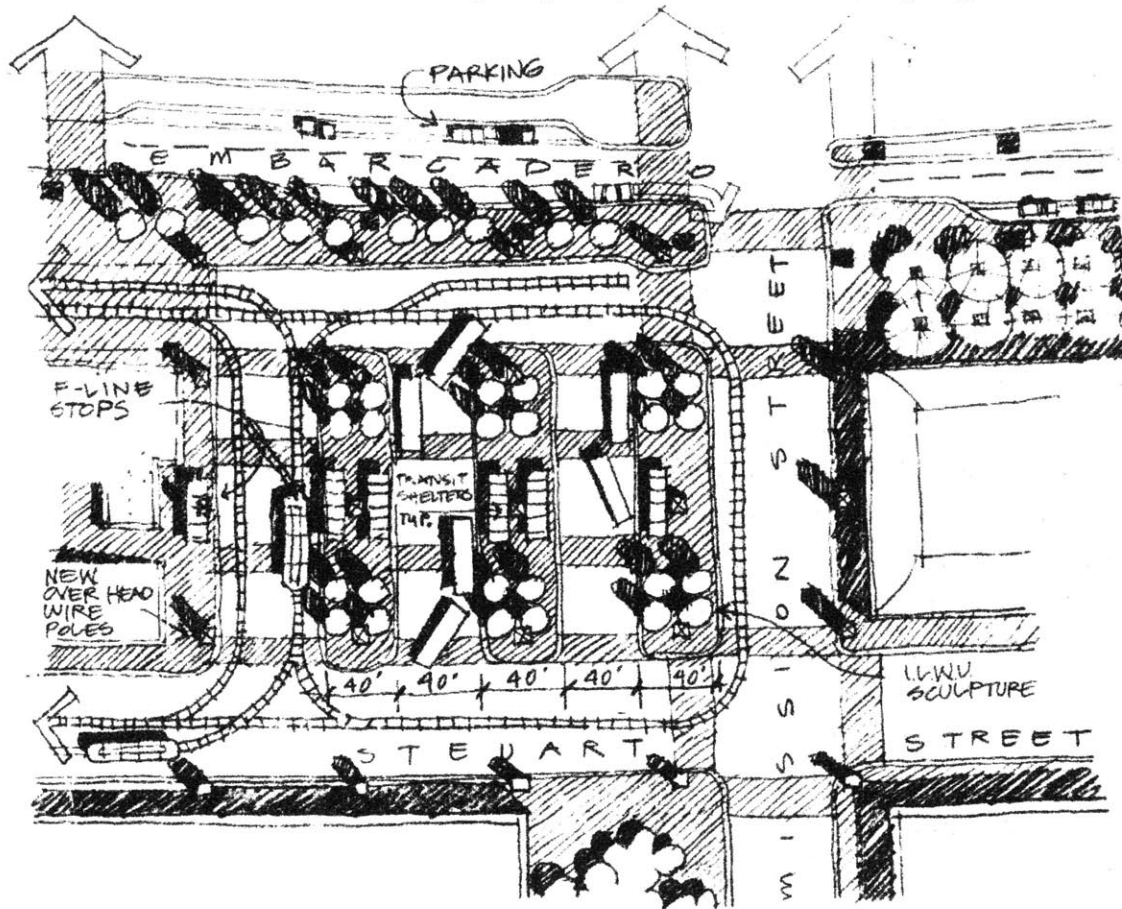
by thousands of tourists as they connect from Fisherman's Wharf south to the Ferry Building and Market Street. This path provides some of the best vantage points of the Bay Bridge and Oakland, yet few provisions have been made to accommodate or bring attention to these qualities. The resulting edge condition is

one of missed opportunity, as the tourist's stroll past the historic building fronts of the piers without engaging them in any way.

Morphology

The Embarcadero Plan presents another example of using open space as the primary element in the project design. In the case of the Embarcadero, the open space takes the form of a transit corridor that serves the waterfront through both public rail and roadway. This could be considered another unprogrammed open space solution; however, transit is a program, especially when coupled with some of its ancillary uses as it is in the Embarcadero. Amongst these uses is a bus lot and light rail turn around area of 40,000-sq. ft. that is directly adjacent to one of the primary centerpieces of the project (Figure 8). The width of the roadway completely dominates the site, leaving little room for other programmatic interventions. The plan recognizes this problem: "the Grand Boulevard's wide median absorbs a greater amount of the available roadway, reducing the

(8) The 40,000 sq. ft transit turn-around and bus storage area remained in the same location along the Embarcadero near the waterfront. Source: *The Embarcadero Urban Design Study*.



recommended 25-foot promenade width to less than 20 feet. The perceived roadway width is therefore greater than those of the promenade and landside open spaces.”¹⁵ This may be one reason why planners attempted to pull in surrounding parcels not under government ownership. While generally successful, an argument could be made that the road size takes away from other development opportunities. The Portland example gave cause to consider non-greenspace solutions, yet this project’s plaza approach appears to have missed the rare chance to create an urban park in a dense city fabric.

Open Space

The centerpiece of the project, the Ferry Building/Justin Herman Plaza area, was designed as a series of linked, hardscaped plazas. Market Street terminates at this location, turning south towards the Bay Bridge. The plaza that stands between this termination and the Embarcadero is an unprogrammed paved space used only as a means of crossing to other parts of the site. It

does create a suitable visual base for the Ferry Building, separated from the structure by the roadway. As a result, it is a stranded space with little allegiance to the surroundings. Its existence is even more perplexing when considering it was constructed adjacent to a popular existing urban space, Justin Herman Plaza. This area frequently draws crowds from surrounding offices at lunch and residents during the weekend. In the winter, a seasonal ice rink activates the Plaza. The Plaza contains a number of pedestrian amenities such as tables, benches, steps and a controversial fountain that operates during non-drought conditions. Thus, any pedestrian traffic traveling down the corridor will be attracted to the space designed for habitation, leaving the Ferry Building Plaza an urban desert.

Other open spaces along the corridor are intermittent parks and unused lots. The open space that is not expressly dedicated to the roadway falls in the ribbons of land at the edge of the Embarcadero. On the waterfront side, this is used as a wide pedestrian promenade. Occasional benches are



(9) Seating, grassy terraces and palm trees create an inviting pedestrian walkway.

provided, along with sparse planting. The area is dominated by the concrete of the walkway and the stone facades of the bulkhead buildings. Between these buildings are opportunities to see views of the bay that are seldom articulated by furniture or plantings, making them generally unimpressive. On the other side of the roadway is a narrower version of the promenade. At points near Market Street, concrete terraces are provided with grass strips and seating (Figure 9). The use of palm trees gives definition and shade to the area, while appropriate pedestrian amenities encourage people to stop and enjoy the space. The success of this area can be seen by the number of people occupying it compared to those walking the adjacent promenade. It is an inviting space that attracts people by providing multiple viewing heights and angles, and numerous places to sit, walk or jog.

Programming

The greatest lost opportunities in programming occurred along the site

edges, both in the urban rooms and the existing bulkhead buildings. The original plan stipulates that the 'urban rooms' that are controlled by the city should be temporarily beautified, then developed:

"Until their uses change, a leafy screen of trees encircling each lot would minimize the intrusive character of numerous parked cars. This planing would be designed as a permanent solution capable of enhancing, and coordinating with, later uses. If these lots are developed, buildings which face The Embarcadero should be set back from the sidewalk and public ROW, allowing for spacious landscaped areas that contribute to 'the roadway in the park' concept. Buildings fronting City streets other than the Embarcadero roadway could be set at the sidewalk. New buildings should be required to provide retail space at ground level, which will increase the liveliness and safety of the street."¹⁶

The decision to program the active areas away from the Embarcadero did not work. This strategy may be partially responsible

for the failed development along this edge—owners of sites that were interested in capitalizing on the new development may have believed that the most lucrative use for their site was retail. With the city discouraging this use, forcing setbacks and plantings, owners may have decided to invest elsewhere.

Recently the Port of San Francisco has begun to think about providing these spaces with more vibrant uses. The city has begun entertaining proposals to convert Piers 30 through 32 into a new cruise ship terminal. The biggest project underway is long overdue—the Ferry Building restoration project. As the signature element along the Embarcadero, this building remains one of San Francisco's central icons. The project includes a new ferry terminal passageway with retail and public uses on the ground floor.

The Port has also initiated a competition for the development of a 19-acre area including piers 27 to 31. The brief includes a mixed-use recreation complex with a health club, a San Francisco Giants youth baseball center and an entertainment complex.¹⁷ As in the

case of Portland, the city is reevaluating the successes of the project and making adjustments. Perhaps this is inevitable in any large-scale urban intervention. With changing attitudes and the opportunity to study the usage of the space, planners may find adjustments necessary in any project. Fortunately, the Port of San Francisco has taken the lead on this development opportunity, and the failures of the past may soon be undone.

Regulation

The majority of the site was already owned by various government agencies as a transportation easement. With the Embarcadero becoming primarily a surface road, ownership remains with the government. Outlying and adjacent parcels and property are the primary concern created by this typology. The lack of adequate regulation and incentives may have been responsible for creating both the anemic waterfront piers and the numerous under-built sites on the edge of the city fabric. It could be argued that a working waterfront—one that allows

industry to operate, can be an exciting opportunity as people can interact with businesses and processes that they are usually not accustomed to seeing. In this capacity, waterfront industry can have an important role creating a unique attraction through use. Unfortunately, the waterfront uses in these piers are seldom accessible, and usually not visible.

Planning officials should have been more aggressive in controlling the 'urban room' parcels, as they could have created an active edge to counteract the passive waterfront edge. Through incentives, owners should have been encouraged to build on the sites. Coupled with strong urban design guidelines that stipulated building edge and setbacks, the corridor could have been given definition. The plan did propose design criteria. These guidelines are intended to regulate "suitable treatment of surfaces and components of the four capital improvements...the specific needs and characteristics of adjoining Embarcadero corridor properties and operation [also] should be considered to create a unified and efficient Embarcadero."¹⁸ Once again

the plan desires to regulate beyond the boundaries of the site. The Embarcadero Plan uses the following criteria to form the guidelines¹⁹:

- Roadways
- Transit
- Freight Service
- Pedestrian Circulation
- Parking and Service Access
- Landscape
- Materials and Equipment
- Underground Utilities

Together, these elements created a comprehensive guide to forming the built and service environment.

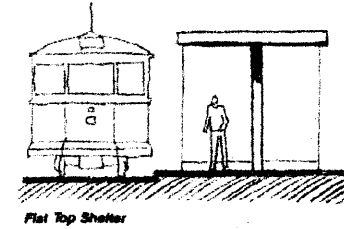
The historic pier bulkhead structures were given guidelines to 'protect the formal integrity of the building sequence'. The plan states that "intact bulkhead building sequences are a particularly appealing component of this waterfront setting, presenting graceful sweeps of building fronts along the edge of the Bay."²⁰ This gives some insight to why the waterfront remains inactive. Nevertheless, the bulkhead buildings

should be occupied with uses that can activate the waterfront. This can be done if the city as owner, designates that new leases must contain an element of street activation along the first floor.

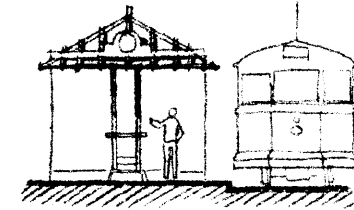
Regulation offers one solution to solving the general malaise that affects owners of the 'urban room' parcels, and the government's operation of the piers. Effective incentives would provide a catalyst to encourage owners to build out their sites, taking advantage of the tremendous opportunity of location that currently remains untapped.

Transportation

As the central connecting spine of the project, transportation serves as the heart of the plan. The influence that transportation has on the final plan goes beyond the ribbon it leaves down the length of the corridor. The site is also used for bus storage and a transit turn around. The plan also intended to serve the freight needs along the Embarcadero, as the piers still had numerous commercial and industrial uses. This makes it a key programmatic component as well as connection device. Transportation was provided by two primary sources—an improved Embarcadero boulevard and



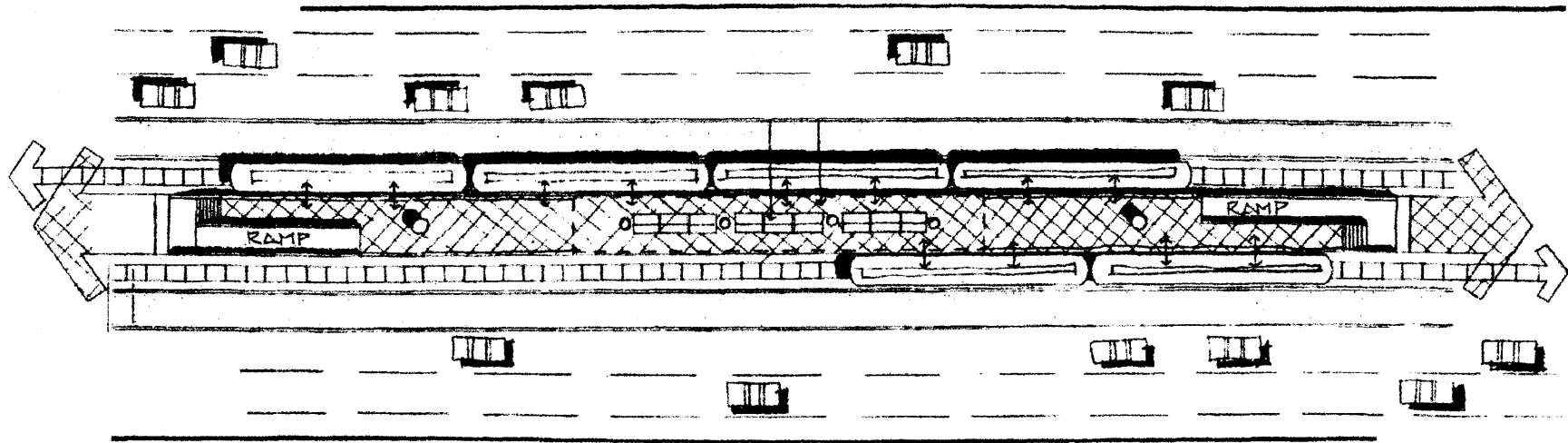
Flat Top Shelter



Park Structure Shelter

(10) The use of typical designs for transit shelters creates a unity that helps connect the services of the space. Source: *The Embarcadero Urban Design Study*.

By using the median strip as the primary transit boarding area, passengers can wait in safety. Source: *The Embarcadero Urban Design Study*.





(11) The use of historic streetcars give the area additional character. Here a car arrives at a typical stop equipped with an ADA accessible ramp.

MUNI's F Line, relocated in the median of the roadway. The rail line was intended to provide a link for residents and commuters from the Castro to Fisherman's Wharf. This new connection has found significant ridership as it serves both interests. The plan stipulated specific locations and appearances for each of the stops, ensuring that they would read as a system (Figure 10). While the location at the center of the boulevard is convenient, it can be somewhat awkward to reach--pedestrians must cross at least two lanes of traffic to reach a stop. However, this isolation prevents interference with regular traffic, bus routes and street parking, all needs that require space along the roadside.

The cars MUNI uses on this line are refurbished historical streetcars from across the nation. This provided the line with an additional presence that quickly made it an icon along the waterfront (Figure 11). Integration into the public transportation system was also a key for making a waterfront trolley successful--connections are easily made to BART and Cal Train, the regional commuter rail system that connects to San Jose.

Planners from other cities who look to emulate this solution must ensure that these transit lines serve the city, not just tourists.

The turnaround plaza used for bus and rail near Justin Herman Plaza is large and unattractive. While an essential element of transportation, a turn-around and storage lot should not be placed in such a prominent position along the waterfront. It appears that the decision to place these services at this location was borne from convenience--they were already there. The plan only enlarged the space and landscaped it. If it could have been located elsewhere, perhaps further down the Embarcadero near the Bay Bridge, this space could take better advantage of its location.

Overall, the transportation system designed for the space is highly successful due to its design and integration into the surrounding urban context. Its location in the center median of the roadway creates an unusually wide road, but removes the numerous difficulties associated with traditional public transit that uses the roadside for stops. The rail line also recalls

the rich history the city has with trolley's, and thus is a response appropriate for the region.

Property Rights

With primary government ownership over the site, the issues of property rights are most essential at the edge conditions. The bulkhead ownership by the Port of San Francisco has not been utilized to its fullest potential. Government ownership of these spaces is essential—they create a critical historic edge. Currently, the piers are under long-term leases to various companies that use them for storage or transfer facilities. If the government were to cede control to private interests, there would be concerns over all of these buildings becoming tourist destinations similar to Fisherman's Wharf. This would compromise the character of the buildings and the area. There is a middle ground that can be found where activity is created, but not dominant. By leasing the land to other uses, the city will be able to continue in this critical ownership capacity while allowing new

uses to flourish.

The 'urban rooms' along the other face of the corridor prove to be more problematic. In a similar mindset as Portland, the city intended for some of the rooms to be developed immediately, with others being 'banked' for future development. Unlike Portland however, the banked parcels were not in prime locations, and not owned by the government. This creates a puzzling relationship—how can the government 'bank' parcels if it does not own them? Development will occur with market demand on privately owned parcels, leaving the government no control. The land banking system can only work if the government holds complete control over the sites being banked.

The government's lack over control over the other edge sites has also lead to the continued apathy discussed in regulation. Without ample regulation or ownership, there can be no expectation of development regardless of the increased value of the site caused by the redevelopment effort. Granted, it is surprising that these parcels have

remained surface parking lots, but without taking initiative to ensure that development occurs, the edge condition, whether it consists of waterfront bulkhead buildings or empty lots, may remain since the cheapest solution is always to do nothing.

Conclusion

Cities considering elevated expressway removal have frequently looked to San Francisco as an example of success. Undoubtedly, it is successful—it has provided a unique edge along a historic waterfront that draws thousands of tourists each year. The real success of the project is that its design serves the transit needs of the city and its residents. From transportation to open space, the project was designed to be a living room for the city, even though the concept was never addressed in the plan. Unfortunately, the project has missed numerous opportunities to make a more vibrant location that could become a commercial spine for the city. The failings in this respect lie almost entirely on the

way the edge condition was treated. The Port of San Francisco failed to leverage its ability to use the opportunity inherent in these sites through their ownership. As Portland has had to rethink their urban park, San Francisco is finding ways to remedy the Embarcadero's short-fallings. This provides an important insight to those who tackle these projects in the future—the 'final plan' may never be final. But, by learning from the errors of these previous projects, today's planners can sidestep this group of problems, making more complete and well-considered interventions.

As planners in San Francisco contemplate the changes necessary to enliven the Embarcadero, they are undertaking the latest entrant into the highway removal typology—the removal of another elevated roadway. Just this year, San Francisco has begun removing the Octavia Boulevard off-ramp, one of the snaking appendages of Highway 101 that once divided a community, and now acts as a border between two separate neighborhoods. With a better understanding of the typology, San

Francisco may become the first city to effectively use precedent to guide its own design.

¹ *The Embarcadero Urban Design Study: Volume 1, Final Report.*

² *Embarcadero Waterfront Competition*, p 2.

³ *Ibid.*

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Embarcadero Waterfront Competition.*

⁹ *The Embarcadero Urban Design Study: Volume 1; Final Report*, p 2-3.

¹⁰ *Ibid*, p 3-1.

¹¹ *Ibid*, p 3-2.

¹² *Ibid*, p 3-3.

¹³ *Ibid*, p 3-5.

¹⁴ *Ibid*, p 1-2.

¹⁵ *Ibid*, p 3-4.

¹⁶ *Ibid*, p3-2.

¹⁷ *Port of San Francisco in Transformation.*

¹⁸ *The Embarcadero Urban Design Study: Volume 1; Final Report*, p 5-1.

¹⁹ *Ibid*, p 5-1.

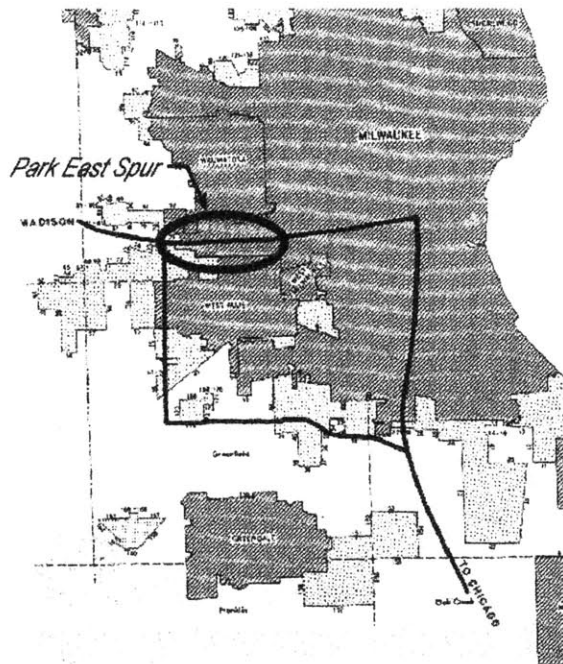
²⁰ *Ibid*, p 5-16.

The dense development typology, represented by Milwaukee's Park East Redevelopment, presents a different way of thinking about the highway removal archetype. Where San Francisco and Portland saw an opportunity to create open urban spaces that cities of their density would have difficulty carving out, the Park East Plan proposes a higher density solution that attempts to stitch the three disparate surrounding neighborhoods together, uniting them with a reclaimed waterfront. Instead of highlighting the new void with public amenities, it allows the surrounding development to overtake the new land, closing the wound with a highly planned development strategy that is highlighted by a number of new-urbanists ideals.

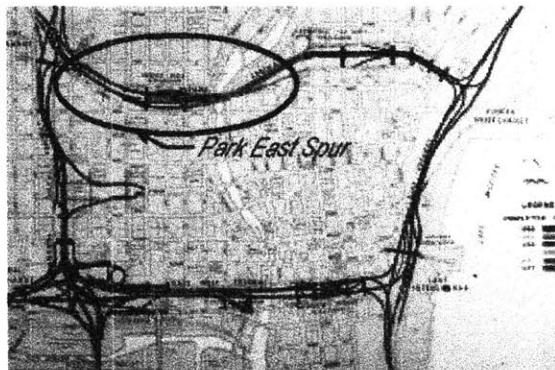
History

Milwaukee's growth and expansion have long been affected by three major interstates that divide the city's downtown into three smaller sections. Along the east,

Chapter Six ***Dense Development Typology*** ***Park East Redevelopment***



(1) The 'Yellow Books' plan stipulated a rectangular system that encircled downtown.

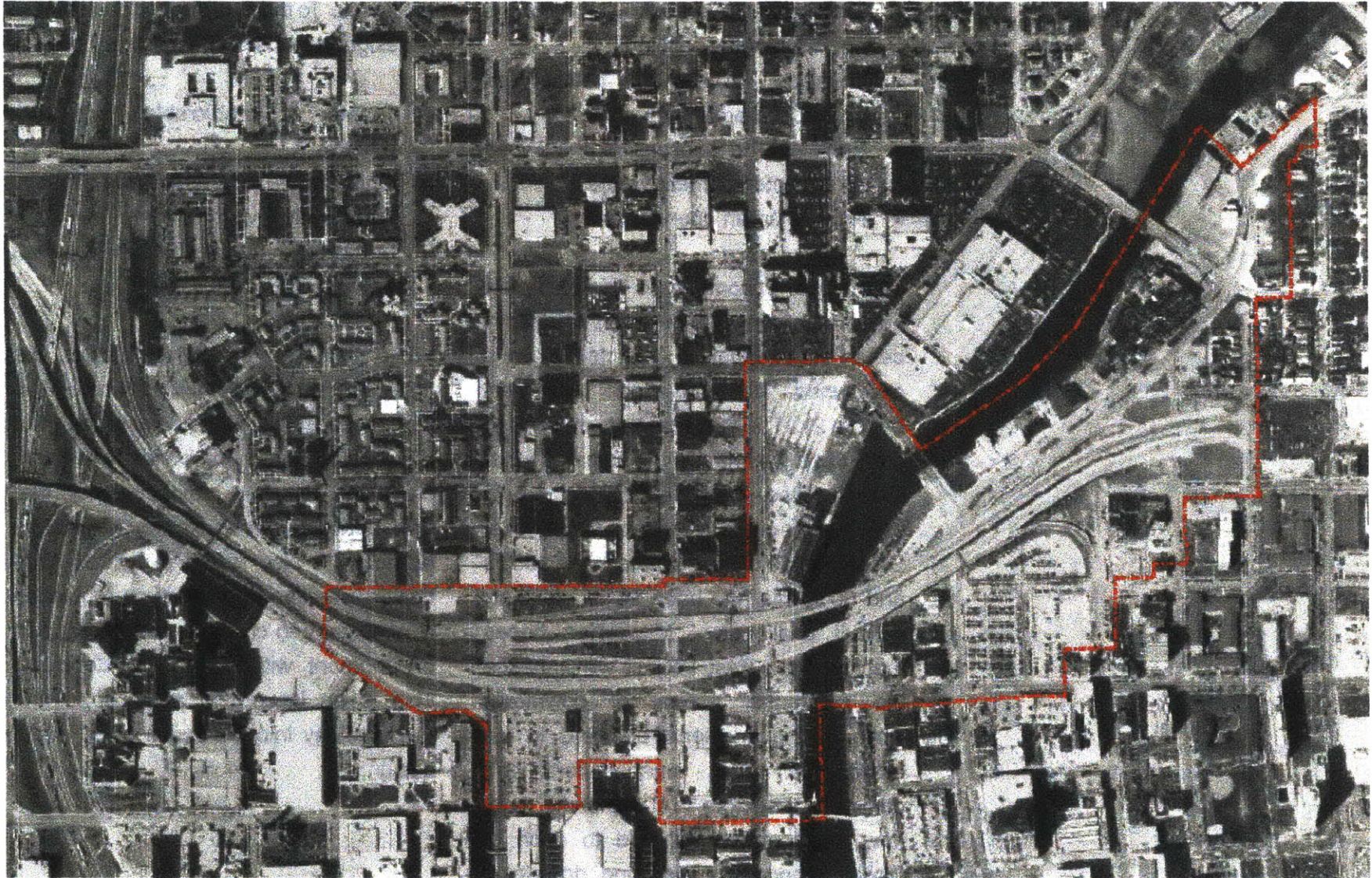


Highway 43 has created a barrier; to the south, Interstate I-794 has slowed expansion through the central business district; to the north, the elevated Highway 145, or Park East Freeway, has prevented a strong business sector from taking advantage of the Milwaukee River. For several years the city has considered the relocation or removal of both I-794 and the Park East Freeway. While it is believed that an I-794 project may not be currently viable, Milwaukee has begun the removal and subsequent redevelopment of the Park East Freeway corridor. This corridor represents the remnants of a freeway system that was designed to fully surround the downtown in the 1960's¹ (Figure 1). What was constructed devastated neighborhoods, provided a physical boundary for the city's expansion and took away land on the Milwaukee River. Even the portion that was not constructed wrecked havoc on the surroundings: an extensive corridor was cleared of housing and businesses in anticipation of the circumferential route, which was canceled in the mid-1970's due to local opposition². This land remained

vacant for many years until the state finally removed it from the transportation corridor. Over a block wide, this corridor was eventually inhabited with the construction of the East Pointe Neighborhood, a highly successful urban community composed of housing and retail that spurred a new city-wide residential boom.³

The 1990's saw an increased interest in revitalizing downtown. Led by a series of high-profile projects, local businesses and politicians were interested in organizing a formal guide for downtown development. What resulted was the Milwaukee Downtown Plan. The Plan proposed thirteen catalytic projects that were intended to stimulate overall downtown development. One of the key projects identified was the removal of the Park East Freeway spur. Within the proposal, the Plan recommended "a mixed use district that reinstates the traditional street-grid system and identified objectives to address redevelopment throughout the Park East Corridor"⁴, including:

- Promote residential and office mixed-use development



(2) The Park East Redevelopment site, shown here in an aerial photo, straddles the Milwaukee River. Source: Redevelopment Authority of Milwaukee.

- Extend the RiverWalk in front of the new mixed-use buildings
- Enhance pedestrian connections across and around the river
- Enhance the success of the Water Street entertainment venues
- Provide urban open space.⁵

The project encompasses approximately 26 acres of land, 16 of which lie directly beneath the highway interchange in a city-owned transportation easement (Figure 2). The City's primary impetus to carry out this project is the same as other municipalities—they want to lure people back into the city to live, work and socialize. Since the rise of the suburbs in the 1950's and 60's, this has been an increasingly difficult challenge. Milwaukee hopes that the Park East Project will enhance the residential appeal of downtown while adding additional business to the established retail, entertainment and commercial sectors.⁶ At the same time, new development will add to each of those components, boosting downtown employment and business while adding significantly to the city and county property

tax bases. To this end, the redevelopment is designed to foster the following goals:

- Create a predictable regulatory process
- Optimize the long-term value of public and private investment
- Enhance urban open space opportunities⁷

While the Plan certainly achieves the first two goals, the third is where it is least successful. Nonetheless, the Plan provides an exceptionally unique solution, producing a new neighborhood that falls between three existing Milwaukee districts. It also raises a critical urban design question on how much regulation is necessary to create a successful built environment with private development. This is an issue that extends beyond this typology into the realm of all urban design.

Design Concept

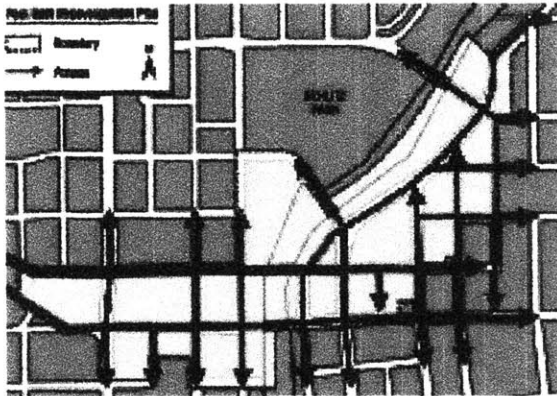
As in all of the cases within this typology, neighborhoods grew separately around the highway, using the roadway as a defining growth boundary. In the case of Milwaukee, the three areas surrounding the new site are the McKinley Avenue District, Lower Water Street District and Upper Water Street District. The new Plan attempts to stitch these three zones back together, not creating a continuous urban fabric, but a joint between disparate conditions. The Plan clearly articulates this concept:

"This plan is intended to repair the fabric of the city by restoring the urban character of the areas, with its rich mix of uses....The underlying premise of this plan is to replace and regenerate the infrastructure of blocks, streets, and urban open spaces that were disrupted when the freeway was built. This approach will create the highest long-term value for the downtown and the surrounding metropolitan community."⁸

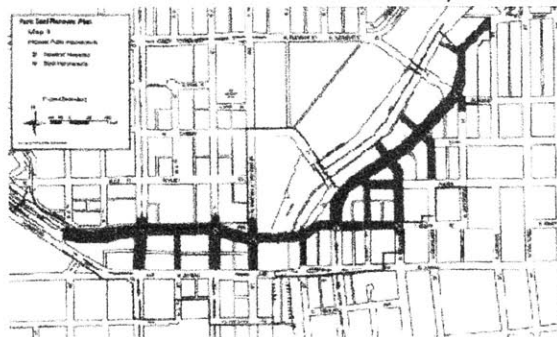
This stance allows for a development

pattern of a higher density than the three previous developments. The Plan divides the site into three distinct 'districts', each of which will relate to their surrounding environment. These are generated through site analysis and the "evolving history and character of downtown development"⁹. Within each district, three 'sub-areas' are designated from west to east. These sub-areas provide further planning direction within each district.

Instead of completing the project at one time as many all-public examples have, this project expects completion to take 10-15 years. With a very slow build-out, it may appear unlikely that development will occur early in the project. To draw residents, the area will need a substantial group of amenities, not existing in the first years of the project; conversely, developers may be unwilling to build if an existing market is not in place. To combat this difficulty, the city has done a great deal to brand the area. The publicity alone has generated an interest that will likely draw visitors as soon as development begins. In addition, the area is bounded by vibrant existing



(3) The plan diagrammed the desired connections into the existing city grid (above), then extended the street grid into the site as shown (below). Source: Park East Redevelopment Plan



neighborhoods and commercial sectors which will be looking for expansion opportunities. Other businesses will move in to capture additional business created by new development, complimenting the existing services.

The concept is unique, and deserves merit for its originality within the genre. Unfortunately, its density can be viewed as a missed opportunity within the typology. With a strong and diverse set of neighborhoods surrounding the site, the area provides a rare chance to create a larger scale urban intervention that could serve the surroundings without providing the same amenities. The sameness of the controlled development does not create uniqueness. As a result, the project does not take advantage of a truly rare opportunity by interjecting a concept that matches its unprecedented condition.

Connection

The decision that governed the form of the new land was extending the existing grid through the site (Figure 3). This choice creates regular parcels ensuring that “blocks are arranged to maximize buildable land in logical patterns and increase access opportunities”¹⁰. The Plan also wants to connect to the abutting neighborhoods, riverfront and the downtown plazas and squares. Thus, the project attempts to fully integrate itself with its surroundings.

Visual connections are also desired and specifically called out in the Plan. They are established through the identification of specific parcels for iconic structures. These are intended to act as landmarks that provide orientation as well as interest: “The street pattern is designed to allow for the creation of critical urban spaces, located such that they add value to surrounding buildings and facilitate visual linkages among sites.”¹¹ Four sites have been designated for urban squares. In addition, four sites have been chosen for ‘landmark’ buildings. While iconic

buildings will create a strong sense of place, they will be viewed only on the axis' created by the orthogonal street pattern, thus reducing their ability to create strong visual connections.

The Plan also describes the importance of pedestrian connections both within the site and from downtown: "Pedestrian travel is important to existing businesses and is expected to enhance with new developments. Public improvements within the project area should make every effort to improve pedestrian connections and create convenient access to, from and among entertainment, shopping, and residential areas."¹² These connections are provided through new sidewalks, an expansion of open spaces within the site and an expanded RiverWalk. The Riverwalk is an existing amenity the City of Milwaukee is currently working towards integrating through the "Milwaukee RiverLink Guidelines", intended to link the northern neighborhoods with the lakefront.¹³ While the RiverWalk is an important amenity on which to capitalize, other aspects of the pedestrian environment, in particular

the connection and use of open space, are neglected. Part of this problem lies in the masterplan's failure to create a cohesive open space network that could act as a system and not as a set of randomly located parks. This concept could be pushed further through the use of an identified path system. Such an identification scheme would help tie the various open spaces together as well as create a stronger identity for the district through a cohesive pedestrian experience.

Edge Condition

The proposal suggests that each district be treated specially, and in relation to its surroundings. All three districts contain an extremely eclectic mix of uses:

- *McKinley Avenue District.* West of the Milwaukee River, this district is largely used for surface parking.¹⁴ A mix of residential and commercial uses characterizes the northern edge of the district. The commercial

buildings consist of manufacturing and warehousing. The southern edge contains the Bradley Center, Midwest Express Center and U.S. Cellular Arena, all of which draw large numbers of evening visitors. A technical college and county buildings draw daytime students, employees and visitors. To the southwest lies the Pabst Brewing complex. Vacant for eight years, the historic buildings provide an interesting adaptive reuse development proposal in the form of an entertainment center which is already under way.¹⁵

- *Lower Water District.* Located on the eastern bank of the Milwaukee River, most of the land is occupied by surface parking. The area near the river contains a number of nightclubs and restaurants which run along Water Street. To the south is a mix of businesses and regional entertainment halls. The western border is bounded by the Milwaukee River, and almost entirely dedicated to the easement. The eastern edge

is composed of both residential and institutional uses.

- *Upper Water District.* This district “encompasses the largest portion of the Milwaukee River within the redevelopment plan boundaries and is where downtown Milwaukee transitions into finer grain residential neighborhoods.”¹⁶ To the north, smaller residential neighborhoods are created by a smaller parcelization pattern. Water Street runs along the river, adopting the irregular form of the river while creating odd blocks and intersections. The surrounding neighborhoods are considered the nicest among those near the site. Within the last several years, new neighborhoods have been constructed along the north, consisting of single family homes, apartments and condominiums. To the east lies a dense traditional neighborhood complete with an active retail and streetscape.

Together, these neighborhoods provide a rich surrounding palate

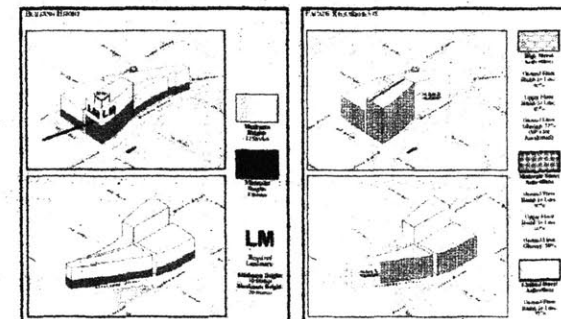
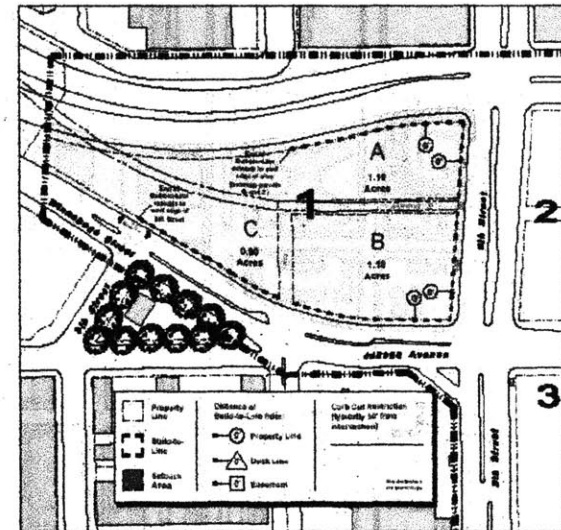
from which to work, but the Plan never specifically stipulates the future development of surrounding blocks. The redevelopment plan is a city project, yet the scope of zoning and urban design guidelines do not extend beyond the project limits. While market forces may dictate compatible uses for these blocks, some specific regulation should be provided to ensure that these blocks allow the development plan to have a soft edge from both a physical and programmatic design vision. Considering the high level of standards the project places on development within the site, it is surprising that surrounding parcels are not given any attention. The provision of different guidelines would allow the original Park East project to remain its own urban district, separate but integrated with the surroundings.

Morphology

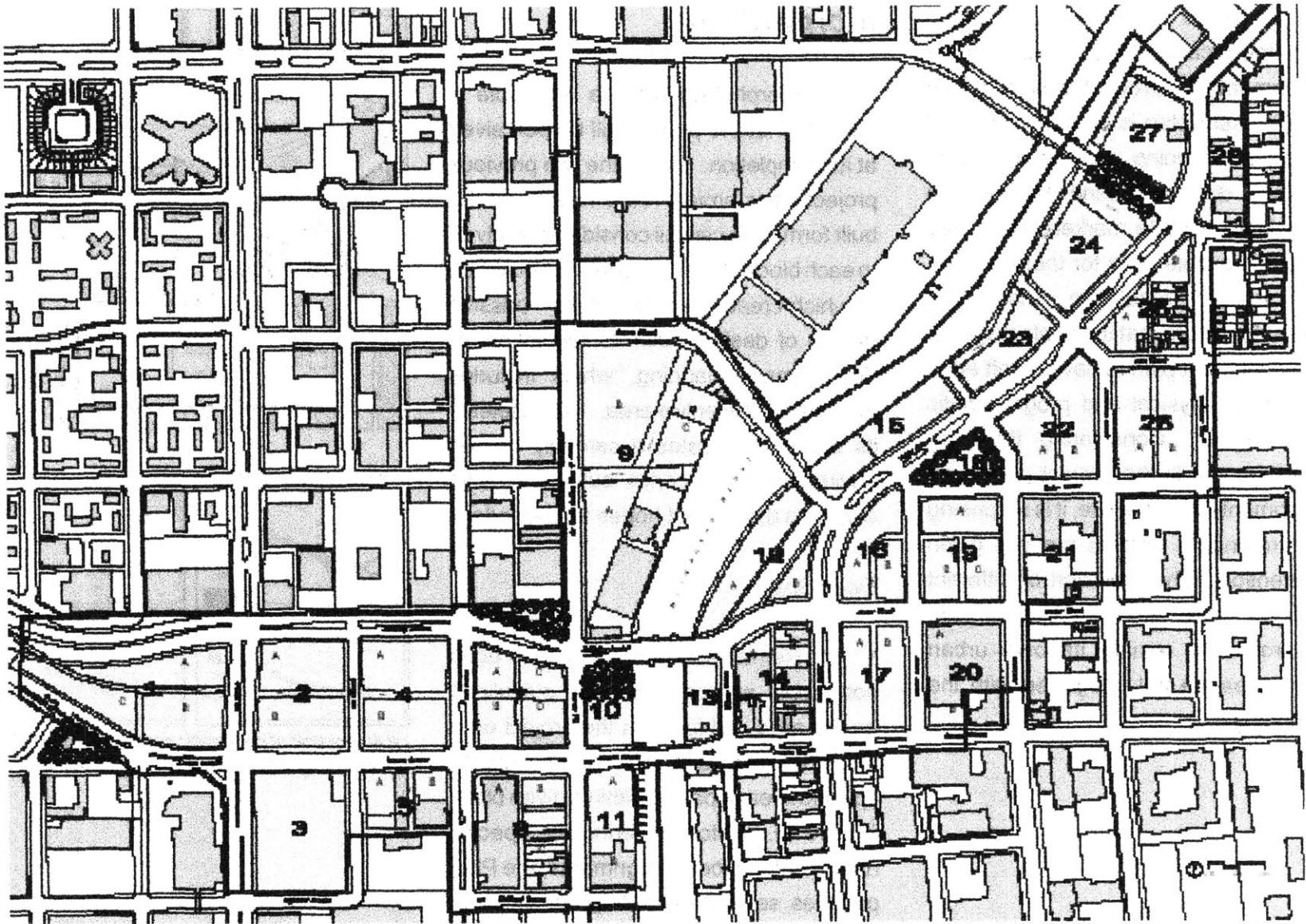
Morphology plays a large role in the way that the project will be perceived at its completion. Unlike the two previous projects, this project relies heavily on the built form, with careful consideration given to each block. The Plan raises the question of which creates a better place—passive means of design, such as regulation, or development planning, which includes designs for the entire area. Nonetheless, its approach creates a carefully crafted environment that carries out the specific concepts the project hopes to engender.

Open Space

Remarkably, the masterplan does not simply approach general guidelines for the area, but looks at the project on a block-by-block basis, providing guidelines specific to each parcel within a given block (Figure 4). Before entering the specific nature of the block assignments, the Plan provides several overriding principles or concepts that govern the development process for the built form. The 'masterplan'



(4) An example of the graphic portion of the block by block planning. Source: Park East Redevelopment Plan



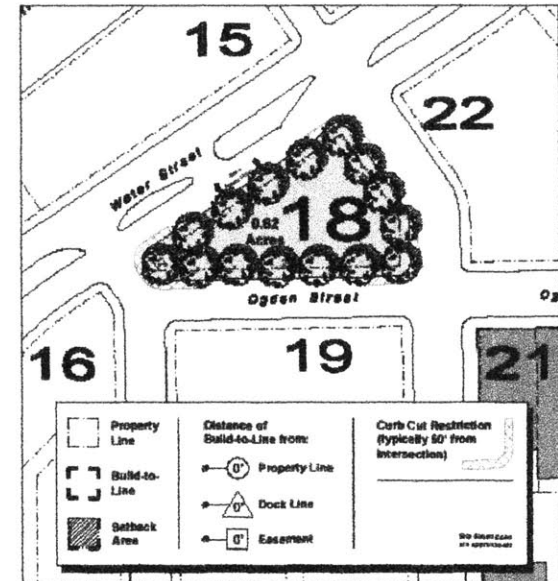
(5) The Park East Redevelopment site considers each block separately in its urban design guidelines. Source: Redevelopment Authority of Milwaukee.

(Figure 5) lays out the blocks, streets and parcels. Within this armature, open space is carved out of the grid pattern. Thus, open space takes the form of loosely programmed green spaces with pathways, grass and trees. Additional open space is provided in the form of landscaped boulevards. The decision for a minimalist approach to greenspace is supported in the planning documents: "Current open space available within and adjacent to the redevelopment plan boundaries are extensive, including County Parks; City parks; miles of Riverwalk and miles of lakefront open space opportunities."¹⁷ Most projects of this typology focus around the use of open space. This has proven partially successful in both San Francisco and Portland. While greenspace may not be the appropriate programmatic answer, these possibilities have not been sufficiently explored in the Park East development Plan. The greenspaces that are provided in the Plan are undevelopable leftovers created by the extension of the existing grid. The triangular sites lend themselves to open space by default, and therefore do not

foster either an idea of a greater open space system, or a unique amenity. This issue has recently been taken up by local activists who are concerned with the lack of open space:

"One proposal that has been getting short shrift in discussions is the inclusion of green or open space into the plan... a few parcels have been identified as "green", but that designation seems to be driven by the unsuitability of the parcels for anything else... What we are missing here is an opportunity to make a pedestrian-friendly, open space corridor that links the Milwaukee River and the Riverwalk through the Park East Corridor to the coming development at the former Pabst Brewery to the west."¹⁸

The most notable omission of capitalizing on open space opportunities is the waterfront. The individual block treatments indicate a narrow easement and setback which allow for the continuation of the Riverwalk. The amount of land set aside for this area does not provide enough of room for larger open spaces. Developers will most



(6) One of several parks provided by the plan. The greenspace is mostly composed of odd blocks that did not have strong development possibilities. Source: Park East Redevelopment Plan

likely build directly to the build-to lines, which only call out the minimum amount of space required. This could create a desirable commercial frontage along the river; however, with other open space opportunities squandered within small triangular lots (Figure 6), the loss of the riverfront as a more completely designed space is a missed opportunity. In a project that is strongly bounded by private development and interests, the city must

take the lead on the developable areas in which it maintains the rights. These small parks can be opportunities to create a strong civic and district identity.

Programming

Programming a development such as the Park East Plan is less about creating specific uses, and more about outlining the allowable uses. With the

Programming the Rose Kennedy Greenway

Rose Kennedy Greenway designers have the intention of creating a public space that is responsive to locals and tourists during all seasons. Provisions to tie the spaces program into after-hour uses has been outlined as a crucial element for project success. To satisfy these diverse needs, a series of cultural facilities is being considered:

- Boston Children's Museum
- Boston CyberArts / CyberArts Festival
- The Boston Foundation
- Boston Public Library
- City to City Leadership Exchange
- Fleet Boston Celebrity Series
- Jewish Center for Arts and Culture
- Massachusetts Cultural Council
- MIT Museum
- Mobius Artists Group
- New England Aquarium
- New England Foundation for the Arts

number of sporting and concert arenas in the vicinity, there is a market for a wide array of uses, especially considering the after-hour activities and demographics that the activities in these stadia elicit. To this end, the project is allowing a large retail/commercial component that compliments the existing services, while creating new demand.

Another major issue that this project must contend with is parking.

The density of proposed development, in combination with the removal of sixteen acres worth of public surface lots creates a potential problem. The Plan addresses the issue by having the private developments absorb the parking—no public structures or lots will be built. In addition, surface parking is prohibited..

The primary programming is done by district. A brief synopsis of each districts programmatic elements follows:

• **Society for the Preservation of New England Antiquities¹**

The recommendation includes both paved surfaces as well as landscaped parks. Both will provide space for passive and active recreation.

Meanwhile, a series of public forums have been held by the Turnpike Authority in an effort to involve the surrounding residents. Amongst the more unusual ideas created through this process are:

- A carousel as a symbolic and actual focal point
- Aquatic theme park designed by artists
- Rock pile for climbing and visual interest
- Fall harvest festival, apple orchard
- A moat that goes through the parcels that will provide a water ride in summer, a skating lane in winter and sledding hill/amphitheater in winter
- Sculpture gardens, an ice rink, explored historic opportunities²

The differences in these two lists illustrate both the reasoning for the greenspace plan, and show the difficulties associated with bringing in such a wide variety of views.

- *Mckinley Avenue District.* The Plan encourages “a mix of activities that enhance the street experience and add to the vitality of the adjacent neighborhoods and downtown.”¹⁹ This will be in the form of restaurants, multi-tenant office space, retail and hotels that support the surroundings. Small open spaces are used as ‘high-visibility junctures’²⁰, allowing for restaurants and cafés to open onto public squares.
- *Lower Water District.* This district will have a similar mix of office and support space for entertainment venues. The Plan proposes an extension of the finer grain parcelization of adjacent neighborhoods to continue the rowhouse typology onto the site. Existing night life uses, as well as the creation of urban squares and landmarks will enhance the waterfront.
- *Upper Water District.* This district will include a group of “unique, high-value,

downtown residential neighborhoods, which include a new public square and an array of mixed uses such as live-work units, supporting retail, and entertainment activities.”²¹ The Plan encourages the adaptive reuse of several existing buildings to create a “new model for urban riverfront development”.

The Park East Plan’s programming is remarkably detailed considering their expectation for market forces to produce most of the development. While they speculate on types of successful development—with the intent to create a salable narrative that creates nodes and urban texture, the Plan itself may not lend enough specific programming direction to influence the outcome. To see this plan to fruition, developers will have to be informed on this vision through information. Even if this does occur, individual property owners will build according to their needs within the standards, which may generate a very different long-term outcome. To ensure the long-term viability of the project as it’s own district, it needs to find

an identity that is not so strongly rooted in its surroundings. The first step in identifying this character may be in the programs that are used. Different uses would attract varied new residents, while creating different options for the existing surrounding residents.

Regulation

The Park East Plan, while inflexible in the realm of urban design guidelines, attempts to foster a great amount of flexibility in the development pattern. Instead of using zoning as a tool to control the form and uses in the area, it is only a preventative measure to ensure that certain uses do not enter the site. The existing zoning regulations are broken down into seven separate designation including downtown, light industrial, local business and two-family residential. The Plan removes these zones and replaces them with a single zone (C9B(A)) that covers the entire site. The following uses are allowed:

- Residential

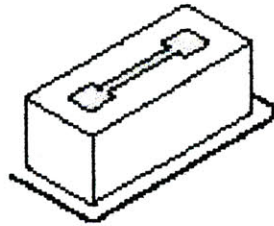
- Office
- Retail/service
- Entertainment/Accommodations
- Institutional

The development code stipulates where these uses occur, and what building forms are allowed in various sectors. The zone places limitations on the creation of parking and a use-group entitled industrial/storage/utility.

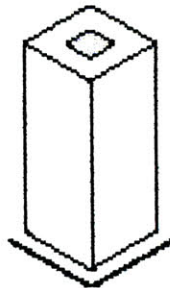
This system raises two questions. First, to what extent is the 'development code' an attractive means of packaging zoning provisions; secondly, does zoning with such a wide perimeter serve any purpose during implementation? The design of the development code is intended to provide many of the same regulations common in zoning. The development code is far more detailed than typical zoning codes with respect to each block. Nonetheless, the development code is zoning—it identifies setbacks, building heights and build-to lines. The zoning code as presented serves little purpose. While it does help exclude certain uses, the development code provides an



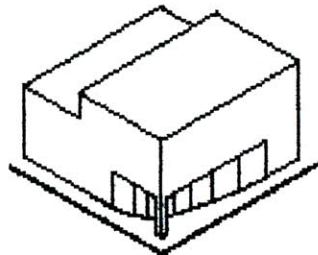
ROWHOUSE



SLAB



CORE



LARGE VENUE

(7) *Building typologies allowed within the project. Their placement is governed by the plan at right. Source: Redevelopment Authority of Milwaukee.*

extensive and particular set of rules that ultimately dictate use through building typology, street activation and the location of key iconic structures.

This collection of regulations may work effectively. Whether they are too stringent is of particular preference. The city is concerned that bad development will damage the success of the area. The extent to which the city will control the

built form has the possibility of creating a more homogenous environment than the city intended. Nonetheless, the project has been heralded as a success by New Urbanists, who strongly believe that this level of regulation is necessary to engender successful, enduring built form.



Urban Design Guidelines

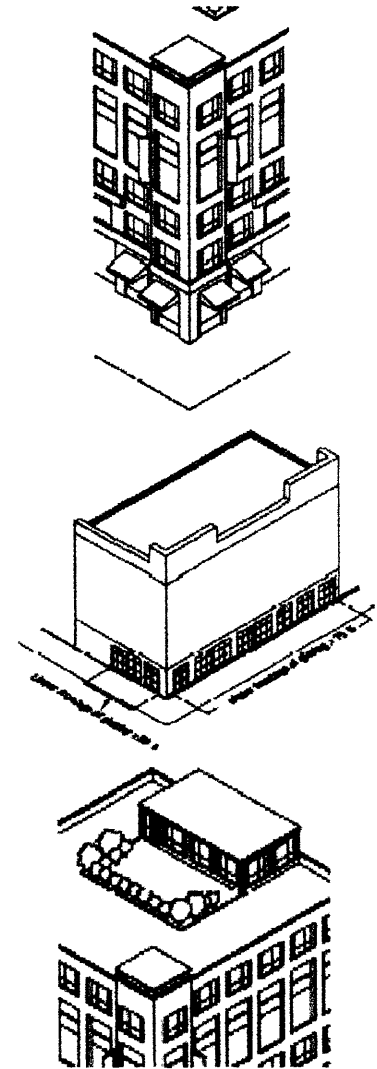
The Plan identifies four building typologies that are permitted on various portions of the site. These are the rowhouse, slab, core and large venue. The Plan stipulates the various combinations permitted within each block or sub-block by color code (Figure 7). Control of the building typology is the most significant move affecting built form. Secondly, the Plan identifies regulatory design tools that are applied to each block. These are divided into the following categories: building height, build-to line, building composition, building middle and top, special design features, site features and signage. The first two tools are controlled on a block-by-block basis in the block development plan. Building composition describes the required façade treatments, including requirements for a building base, street level glazing (including transparency level), how street activating uses must be programmed into a building, how entries are handled, the acceptable and prohibited materials and detailing. Each of these has an incredibly

intricate description, with the intention of fully controlling the outcome, while not dictating a specific design.

In addition to requiring a base, buildings must also adhere to building articulation regulations provided in the 'Building Middle and Top' portion of the guidelines (Figure 8). Iconic buildings are to have 'special design features' that the Plan "REQUIRES...features such as unique forms, shapes, or façade elements that can be seen from a distance. These may be related to signage, required floor setbacks, distinct corner articulation, variation in building materials, etc."²² These sites are used to establish the visual connections and provide a sense of place.

The block development standards, which call out "building placement, site access, potential alley locations, landmark sites, building height, street level activation, special design features and alternative standards"²³ are broken into separate sections for each district:

- *McKinley Avenue and Lower Water Districts.* These two areas contain



(8) Examples of the urban design guidelines stipulate from top: special architectural features mandatory on certain buildings; required ground floor transparency; roof garden design. Source: Redevelopment Authority of Milwaukee.

similar regulation. Both slab and core buildings are allowed in the area with maximum building heights of 12 floors, a minimum of 4. Heights of the first and subsequent floors are regulated to preclude developers from counting a double-height space as a single floor. Special height standards are enforced along Water Street —the height minimum is lowered to 3 stories. This is done to “increase continuity with the scale and character of the existing buildings”²⁴. The districts contain two landmark building sites each. The block standards set particular streets, such as Juneau Avenue, as street activation areas, requiring a set level of street activation. Rowhouses were excluded because they were not considered “compatible with the immediate context or the character and function of the buildings intended for [the] district.”²⁵

- *Upper Water District.* This area attempts to seamlessly blend into its surroundings. Taller buildings are allowed along the riverfront, with a

maximum height of 12 stories. To the south, the maximum is reduced to eight stories, increasing its compatibility with the surroundings. Parcels immediately to the east of parcel 18, one of the triangular parks, require taller buildings to capture the value of the location and create a stronger sense of enclosure.

All of the block development standards reinforce the concept of integration. This project attempts to create the development pattern that might have occurred if the highway had never been built. In some cases, parcel size is used as a tool of development control. In the Park East Plan, the regulations on all other aspects of the built form are so tightly controlled, that parcel size can be more varied. As an example, in the Upper Water District where rowhouses are an acceptable typology, the parcel size remains large, allowing a greater deal of flexibility for the owner. This will allow market-driven development to create a more eclectic pattern through flexibility.

Transportation

The Plan states that “the availability of multiple modes of transportation, the ability for people to move from one neighborhood to the next, and access to natural amenities and open spaces are important factors for vibrant urban areas.”²⁶ In the past, the highway, in concert with the lack of contiguous grid, greatly impeded circulation to and through the site. In the case of the Park East Redevelopment, public transit is achieved primarily through the extension and augmentation of existing bus routes through the site. Highway transit is rerouted through the new street grid from an I-43 exit ramp. This ramp will connect directly to Sixth Street where the traffic will move onto newly widened McKinley Avenue before dispersing onto smaller local roadways.

An existing trolley system already operates along Water Street, connecting the nearby residents to the major event spaces in the downtown area. The Downtown Connector Study is pursuing possible route expansion and other public

transit modes that may be able to serve the site.

Although the site is bisected by the river, no plans have been introduced to implement a water taxi to connect the entertainment uses that proliferate the waterfront. Development for the river is stipulated in the “Milwaukee Riverlink Guidelines”. The guidelines will improve waterfront access and augment the existing recreational boat services in the area.

Overall, the transit system appears appropriate. The full scope of ridership will not come into play for at least a decade. With a dense development pattern and very few wide boulevards, its not necessarily wise to include a streetcar system through the main city grid. For this reason, the bus route expansions, while not as glamorous, will serve the site adequately.

Property Rights

The total area of the development is 26 acres, presenting a huge opportunity to produce a large tax base for the city. As a market driven development, the property rights will ultimately be divided between separate owners. While the existing ownership structure contains a large share of city and county owned land, the majority of the site is privately owned. Much of this land is either vacant or underutilized. The private land will be acquired primarily through purchase. In cases where absolutely necessary, eminent domain may be invoked. Once purchased and parcelized, the various parcels will be sold at fair market value in a way which “achieves the development objectives stated in the Redevelopment Plan. Disposition may, therefore, be by means of fixed price offerings, negotiation, or by any other means deemed necessary or appropriate by the Redevelopment Authority to attain the objectives and development sought for this renewal project.”²⁷ While the implementation of this value system is vague, it appears to

be the Redevelopment Authority’s tool for ensuring that the uses designated in the program are constructed through privatized ventures. Instead of using the tool of zoning to achieve programmatic specificity, the results are created by a much less empirical system. This benefits property value by not imposing restriction through regulation that would limit use, and therefore sale price. Secondly, it could be argued that it is more flexible—if the Redevelopment Authority believes that a change in program is necessary, zoning changes will not be required. Unfortunately, this system lends itself to uncertainty. The ‘disposition policy’ is descriptive, but it leaves to chance other factors in the purchasing and selling of properties that may take prescient over those in a typical market-driven economy.

Conclusion

The Park East Redevelopment Plan was awarded a 2003 charter award from the Congress for the new urbanism for "respecting historical patterns and precedents while creating the development of walkable neighborhoods and the establishment of transit corridors that organize metropolitan structure and revitalize neighborhoods."²⁸ The project represents an example of how cities can infill the highway scar by continuing the development patterns of the surrounding urban edge. The project proposes that government enterprise should use private interests as the primary development funding tool. This may result in what the government wants—ultimate control on the outcome, without being responsible for the full development costs, as the other examples in this thesis have demonstrated.

The Plan provides an interesting example of city building. Instead of celebrating the opportunities inherent in this rare condition, the plan is a recipe for erasure. This allows for a highly densified

solution that maximizes tax base, but also misses a number of critical opportunities. In the case of Milwaukee, many of the open space programs that have worked in other cities may not be necessary. However, the Plan fails to create a well defined, cohesive district that will join the existing districts as its own entity. Instead, it a patchwork quilt of urbanism with the intention of bringing existing conditions to a more harmonious meeting place. By essentially erasing the edge, and not creating any figurative open space plan, the area may become lost in the shuffle of neighborhoods. This is especially unfortunate when considering the strength and character of the surrounding communities, and the opportunity to create a new community with an identity that is significantly different, therefore attracting a wider variety of individuals to the area.

- ¹ jsonline.com
- ² *Park East Redevelopment Plan*, Section D1, p 4.
- ³ *Ibid.*
- ⁴ *Ibid*, p 5.
- ⁵ *Ibid.*
- ⁶ *Ibid.*
- ⁷ *Ibid*, p 6.
- ⁸ *Ibid*, Section D2, p 17.
- ⁹ *Ibid*, p 18.
- ¹⁰ *Ibid*, p 17.
- ¹¹ *Ibid.*
- ¹² *Ibid*, p 12.
- ¹³ *Ibid.*
- ¹⁴ *Ibid*, Section D1, p 7.
- ¹⁵ *Ibid*, p 8.
- ¹⁶ *Ibid*, Section D2, p 10.
- ¹⁷ *Ibid*, p 15.
- ¹⁸ *Putting "Green" Into the Park East Redevelopment Plan.*
- ¹⁹ *Park East Redevelopment Plan*, Section D2, p 19.
- ²⁰ *Ibid*, p 20.
- ²¹ *Ibid*, p 27.
- ²² *Ibid*, Section D3, p 9.
- ²³ *Ibid*, p 12.
- ²⁴ *Ibid.*
- ²⁵ *Ibid*, p 13.
- ²⁶ *Ibid*, Section D2, p 11.
- ²⁷ *Ibid*, Section D1, p 7.
- ²⁸ *The Park East Corridor 3*, October 2003

*Chapter***Seven** *Principles of Design*

Reviewing the extreme cases within the genre makes it possible to distill a stronger sense of the potential that the urban highway removal typology poses. This chapter will propose the set of design principles in response to the seven issues presented in chapter three that should be used when approaching a highway removal and redevelopment project:

- Design Concept
- Connection
- Edge Condition
- Morphology
- Regulation
- Transportation
- Property Rights

The three case studies demonstrate that there are two basic strategies that a city can use when approaching these developments:

- An urban amenity
- An increased tax base

These approaches are not necessarily mutually exclusive; however, the cases studied in this text have demonstrated very little overlap. While dense development alone can be seen in any number of downtown districts, how many places within major cities contain both a strong central public amenity and a unique real estate investment opportunity? As suggested, the result is a hybrid solution that will allow for elements of both. This appears to have been the concept presented 30 years ago in Portland, but the City never saw the development implemented.

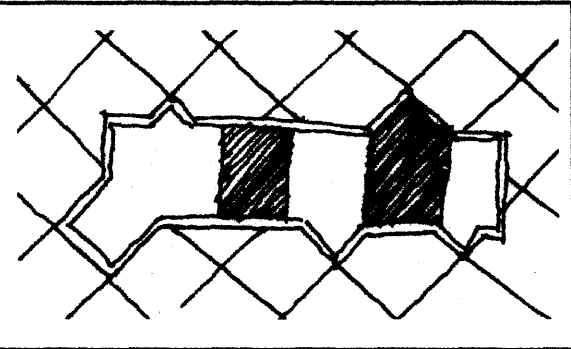
Urban highway removal projects also present cities with the opportunity to use the projects as fulcrum sites, encouraging changes in development patterns throughout an area beyond

the site. This can be achieved through uses that create new activity centers, connections that identify new juxtapositions within the city, or a shift in identity that gives the city a new face. The size and location of these projects make all of these concepts possible. Thus, when planners are considering the development of these projects, they must be cognizant of the larger impact they will have on the city as a whole.

These core concepts are the overriding basis for the principles that follow. Each principle is provided in bold, followed by explanatory text. All principles are indebted to the agglomeration of research and lessons provided by each of the projects, and will hopefully provide long term guidance for the countless number of cities that will consider urban highway removal projects in the future.

Design Concept

- *Urban highway removal projects should be understood as a unique entity, or jewel, in the landscape that celebrates the reclamation of urban space.*
- *The site should be divided into separate districts, each of which address the immediate surrounding context.*
- *The project must relate to the surroundings.*



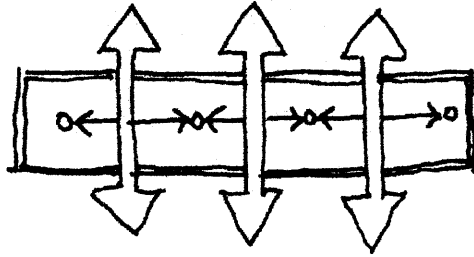
Highway redevelopment sites should be celebrated, not just for the final conquering and removal of a blighting infrastructure element, but for the unusual opportunity provided. Spaces of this size near such dense, textured development must be designed with a rich, textured urban scheme that can stand beside a city that was formed over decades or centuries. To provide only one, two or three concepts within a 50-acre area that is adjacent to a detailed, active and rich downtown is a lost opportunity at the grandest scale; a chance that is not easily, if ever, reclaimed.

Portland and San Francisco have made something from the removal of the roadway that celebrates its disappearance and reinforces the urban fabric with new

programs that build upon and compliment the existing uses. These projects are stitches, connecting the two urban sides. This stitch can take countless forms, but it has to be acknowledged as such, and understood as a bridge and a connector.

Secondly, the space must be understood as a series of districts or zones. To envision this space as a single, massive use is inappropriate. These projects must tap into the surroundings and acknowledge their heritage through districts that address them. The districts should respond to the neighborhoods they abut—they should not be alien, but different and complimentary. All three of the projects propose this; not all of them achieve it.

Connection



- *Addressing and creating latitudinal connection is critical. Longitudinal connection must be addressed, but it will occur more naturally as a function of the site's shape.*
- *Connection should be the core idea when a project design is created. Connection will occur regardless of the intentions of the design team, thus it must be directed and considered.*
- *Connections must be addressed at the level of street, public transit, pedestrian and visual.*

Connection is an undeniable element in these projects—their proximity to dense urban center forces connections, whether desired or not. Success is created by using these connections to reinforce the various elements, tying them together. The projects disparate districts must be tied together with a unifying connection, or spine. The form of this spine can come as a transitway, pedestrian path, visual connection, or all of the above. This provides a common language that binds each district together.

The San Francisco and Portland cases have made it clear that public transportation interventions should take

advantage of the relatively unprecedented opportunities of linear connection created by the transportation corridor. However, the latitudinal connection is most critical in these projects. This connection involves either joining the city and water or the city to itself. Street and pedestrian connections should bridge the space, bringing together disparate neighborhoods in new and unusual ways, highlighting the urban seam by creating new adjacencies.

Visual connections can achieve several goals—first, they help connect the site with the existing surroundings through the provision of site lines, bringing iconic downtown elements to the forefront

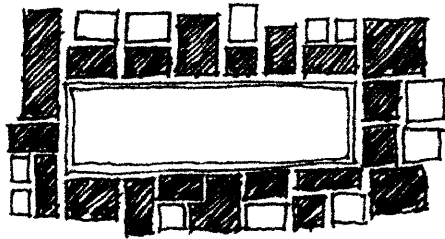
of the new development. Secondly they can help bring the various proposed districts together. A series of visual cues can take one down the linear corridor, from landmark to landmark, or district to district. This will reinforce the oneness of the site as an entity while not tying the space together so irrevocably that it is considered one concept. View corridors are often underappreciated, yet when one

thinks of San Francisco, it is impossible not to think of the Victorians of Alamo Square standing beneath the city skyline dominated by the Transamerica tower. While this is only a visual adjacency created by sightlines, the view remains one of the most indelible and defining visuals of the city.

Boston's Edge Condition

Looking at the edge condition in Boston, one of North America's denser downtown districts, the problems are immediately apparent—vacant sites used as surface parking face the Greenway. When the park is completed, these will become some of the most valuable parcels in downtown Boston; they will be developed immediately. What controls the form that these parcels take? How will buildings address the park that they face without turning their back on the neighborhood that abuts them? These initial vacant parcels will begin the edge transformation. Over a decade or more the buildings along the edge will begin to be replaced or reconfigured to take advantage of their now valuable location. They will also take cues from the new development that grows around them. These parcels are special, as they will create the park façade together, giving character and activity to the Rose Kennedy Greenway. The great plazas of Europe are identified not by their paving, but by the buildings that surround them. Piazza San Marco is recognized by the campanile, the Library and St. Mark's Cathedral—these buildings define the space and make it instantly recognizable. This edge will be responsible for much of the resulting identity of the project, and thus the city.

Edge Condition



- *The parcels and buildings that form the edge of the site must be considered part of the project, even if they are beyond the site boundaries.*
- *Cities should regulate the edge condition to promote compatible development.*

The project edge conditions provide many of the future key development opportunities. Unfortunately, because these zones often fall outside of the project boundaries, they are often considered non-entities in the design process. However, these conditions will develop despite the presence of a carefully planned environment, resulting in a well-considered development with inconsistent edges that do nothing to support the center. By neglecting their future growth pattern, planners are wasting land and creating a new edge condition for the nascent development that may not only fail to contribute, but impede growth. Water appears as an edge condition in almost all projects of this typology. In most cases, this is the

primary amenity the project will capitalize on. Regulation, incentives and ownership of the edge is essential in promoting growth that enhances this resource.

While the urban edge condition must be addressed on a city-by-city basis, it is evident that the city must design standards for these surrounding blocks. In some cases it may be necessary to plan more than several blocks deep along the edge, in others, only a block may be required.

Morphology

Open Space

- *Open space is a critical and necessary opportunity that urban highway removal projects must capitalize on.*
- *Open space should not be the only morphological feature, but a unifying element that brings the development together.*



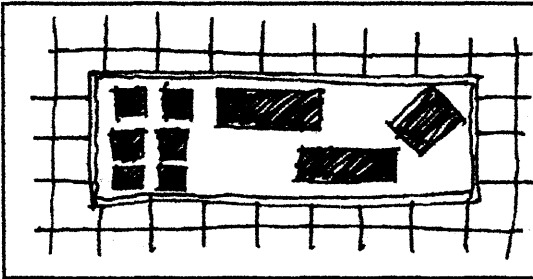
Open space of such a prominent location, quality and magnitude may never come along again. Squandering this opportunity would be an inappropriate response to the condition. However, Portland's Waterfront Park shows how a completely unprogrammed space supplies a solution that is only partially successful. In contrast, Park East's open space plan consists primarily of odd-shaped triangular sites that do not provide an identity or contribute to a larger concept. A small, yet distinctive open space network would have given the development an identity that made the area a unique neighborhood. San Francisco's use of the space as a public transportation network took advantage of the other surrounding

open space opportunities, connecting them for tourists and locals.

Boston's Vast Open Space Plan

The results of this analysis highlight the failure of the current Rose Kennedy Greenway plan that intends to use almost the entire length of the corridor for unprogrammed open space. How does Boston see success in a proposal that was not successful on a site a quarter of the size in Portland? This once again brings forth the lack of understanding today's planners have for this new urban typology. Boston's seasonal weather patterns would make this proposal usable only for a third of the year, at best. During the cold winters and inclement days of spring and fall, the area will be an empty wasteland, unable to bring vigor and vitality to the city year around. Boston must consider a more eclectic group of uses that take advantage of the surrounding city, and the unique opportunity the project allows. The site cuts through existing districts such as the North End, Chinatown and the Financial District, already full of rich history and precedent. Planners should use this fabric as a starting point to understanding new uses that will invigorate the surroundings in a new and imaginative way.

Programming



- *The unique opportunity that urban highway removal projects creates should be capitalized on through the addition of new uses that differ from the existing surrounding fabric.*
- *Program should be used to enhance the development as a fulcrum project, leveraging new uses to generate city-wide change.*

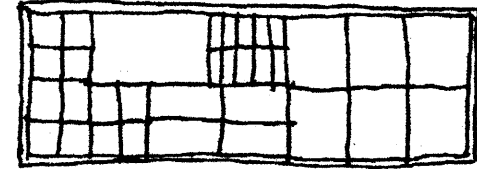
Programming presents an unusual opportunity to propose a new and innovative use within a dense downtown such as the new urban renewal archetype of the sports stadium. While stadiums take advantage of the unique scale opportunities, other more progressive uses can begin the process of reshaping the way that an urban downtown is viewed. Amongst those are schools and incubator spaces, both of which can take advantage of the location and scale. To fund more unusual programmatic interventions, regular development should be provided to create an important tax base.

Programmatic separation of different districts creates a rich texture, making the space unique, allowing it to compete with the dense urban fabric that lies adjacent. Diversity makes

downtown a stimulating and exciting environment; this should not be lost in the ensuing development created by highway removal.

Parcelization

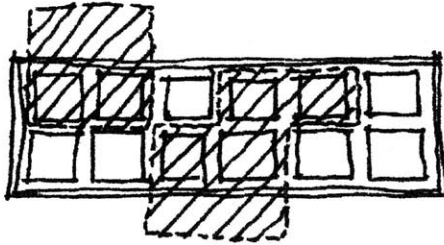
- ***Parcels should be identified in the master plan.***
- ***Parcel size should vary with consideration to the use and surroundings.***
- ***Multiple contiguous parcel ownership should be considered and regulated.***



The use of parcelization is a powerful instrument in city building. Working in combination with regulation, parcelization provides direction for morphology. By stipulating the same parcel typology as adjacent areas, Milwaukee's Park East Plan attempted to ensure that the development type would match the surroundings. Projects that allow for a different parcelization scheme encourage a broader and different type of development. This tactic must be used in tandem with programming, while also being considered as an ownership tool. A variety of parcel sizes is essential in creating the richness of urban experience of which these projects can take advantage. In addition, as the Portland example as shown, it is necessary to identify parcels from the outset—they must be integrated with the original

concepts, or they may never be instituted. An entire concept about place must be generated through programming, urban guidelines, zoning and parcelization. Only then will the parcel breakdown have the maximum capability of achieving the long-term development goals of the area.

Regulation



- *Carefully crafted urban design guidelines should be created to ensure a high level of final product. Urban highway removal projects are too high-profile to leave these standards to chance.*
- *Regulation should extend beyond the site boundaries, providing direction for future development that will form the edge of the project.*

Deciding upon the extent and nature of regulation is largely based on the type of development proposed. The cases

demonstrate a wide array of solutions to this issue. On one hand, Portland offers the most progressive solution to

The Rose Kennedy Greenway—A Failure to Acknowledge Precedent

Although Boston's Central Artery project began at the outset of the urban highway removal and redevelopment typology, the Rose Kennedy Greenway is being designed today. Unfortunately, it has not taken advantage of the vast dossier of past projects that could inform the final vision. The current plan blatantly disregards many of the principles presented here: the edge condition is not considered, transportation is not well integrated into the site, the program is not appropriate for year-around use and connections are denied by the proposed surface roads. The blindness that this represents may lead to an open space that has many commonalities with City Hall Plaza, which lies just several blocks from the site. The waste of opportunity and failure to acknowledge this tremendous opening is unfortunate. While the 'Big Dig' is an engineering marvel, those successes are buried underground. What the country will remember is the visible result of the work that lies in the depths of the financial district. If this project continues in its current direction, the project may prove the largest urban design misappropriation and face redesign within 20 years.

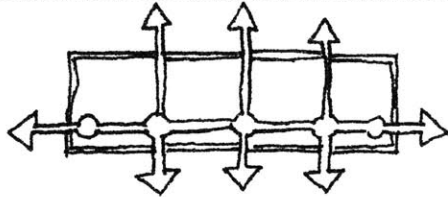
regulation with its land banking strategy. While this concept was not successful, its failures were borne from fiscal issues and regulation that did not ensure the vision. In contrast, Milwaukee's detail-oriented Park East Redevelopment plan provides such extensive regulations that the shape and form of the development is already known, a decade before its completion. The difference between these two examples is that Portland used a primarily publicly owned armature. While Portland desired future private development within the boundaries of what the city wanted, these limits were not well enough identified. Milwaukee's private development scheme required stricter guidelines, as the city will not design the intervention.

This thesis recommends diversity in program that will create a rich, engaging environment, fostered by regulation designed to achieve the vision. It is essential that the privately generated portions of the site be controlled so that they comply with the scheme as a whole. This includes regulating the edge condition so that the privately owned parcels on the periphery are allotted the same consideration, and

therefore do not fall short of the project goals.

The tool of zoning can be used to designate use, height and bulk, however, as the Park East Development showed, it is not necessarily the essential regulatory element. Urban highway removal projects need to provide more finite standards that speak to each development part. Incentives are necessary to create the type of development they envisioned, but with an appropriate armature in place the vision would be created, making an attractive opportunity for developers.

Transportation



- *Public transit should be used as an iconic element that unifies the new development and connects it with the existing city.*
- *Transit should act as a spine, but should not dominate the space.*

A space of this size must be serviced by public transit. The integration of transit is also an important development catalyst and creator of

identity. The San Francisco example showed how a centralizing public streetcar system embedded in a landscaped boulevard can create an organizing spine. The size and location of transit can only be determined on a project by project basis, but it is clear that the use of it as a design element can bring activity and identity to a project.

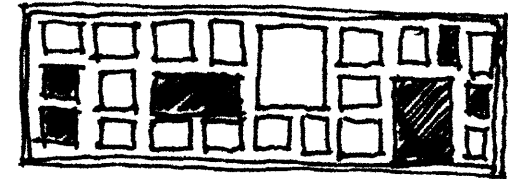
The creation and placement of transit has a large impact on future development, which tends to cluster around stops and along these corridors. In some places, a singular transit line might be effective if it linked important tourist or public attractions, or various city districts.

Boston's Transportation Scheme

Boston's Rose Kennedy Greenway is currently designed with two primary surface roads along each edge of the site. Wide crossroads are provided periodically to achieve latitudinal connections. While transportation engineers may believe that these roads are a necessary element to reduce congestion, the increased surface road capacity will only bring more vehicles into downtown. Meanwhile, roadways will once become the dominant feature of the site, restricting access and use, just as the original highway did for fifty years. In addition, the surface roads limit the extent that the project can be integrated into the extensive public transit network which includes the Silverline, designed and built as a result of the project. No overall transit scheme has been prepared to serve the site, possibly because it has few programmatic destinations requiring connection. While limiting other connections, this solution also erases any potential of creating an integrated edge condition. Thus, this scheme isolates the site from the city through transportation, the urban edge development and does nothing to encourage pedestrians as a result of the surface roads. Boston planners should design a new transit strategy that relies on public transit integration, not the creation of more roadways.

Property Rights

- *Urban highway redevelopment projects should not be owned solely by the City or private interests. A mix is required to realize a usable tax base as well as functional public amenities.*
- *Property should be controlled and sold by the City to achieve some goals through private development.*



Ownership and operation is an important component to making these projects successful. Due to their inherently public nature, they necessitate public funds that may not always be readily available. However, at the outset of these projects the property is entirely owned and controlled by the local government. This reduces acquisition costs for the public improvements, and allows the government to lease or sell portions to fund the public components. Balance between the two elements that preserves open space and public ventures is most appropriate, allowing and encouraging private developers to create new projects that generate revenue and bring activity to the site. The Portland case proposes a unique solution that could act as an armature for development rights.

If a project clearly outlines the guidelines for development as the Park East Plan did, and provides specific intervention areas as the Portland plan did; then developers will be able to enter the site and build successful interventions that coincide with the overall city plan. The revenue gained by the development goes back into the city coffers, funding future projects.

Conclusion

The principles provided above are not necessarily a prescriptive series of solutions, but set of ideas that will guide projects within this typology, strengthening the final vision. By analyzing three different solutions to similar conditions, the greatest range of possibilities was presented, and subsequently integrated into these guiding principles. As Portland has shown, the development may not be the final solution. Today, as they reconfigure their Waterfront Park to better accommodate its original purpose, it is apparent that planners may not get it right the first time, even when they design a scheme that allows future generations to make many formative, programmatic decisions. However, their effort was the first, and therefore unable to benefit from the wealth of projects that exist today. As planners in Seattle, Seoul, Toronto and New York embark on their schemes, they would be best served to do a careful analysis of the projects that stand before theirs in time. With new additions to the highway removal typology being

added every year, this rich development opportunity may soon become the new archetype of urban redevelopment.

While there are countless cities that would serve as suitable examples for use in the application case, none is as relevant and necessary as the case of Seattle. This chapter will apply the seven core design principles to Seattle's Alaska Way Viaduct easement and surrounding area through a recommended design. Since no finalized design has become public at this point, only historical attempts to revitalize the waterfront will be discussed as they relate to the history of the site.

Today, Seattle stands at the precipice of a decision. Through the process of application, the principles will be given more definition and clarity, and Seattle will be given some guidance towards a vision. Regardless of what outcome is chosen, the existing Alaska Way Viaduct, a longitudinal elevated highway that runs 8,070 lineal feet¹ along the waterfront, separating the city from the bay and wharf districts, must be removed. The form that this removal or replacement ultimately takes is still under vigorous debate, but the necessity of its removal is not contested.

On February 28th, 2001 the Nisqually earthquake rattled the 49-year-old

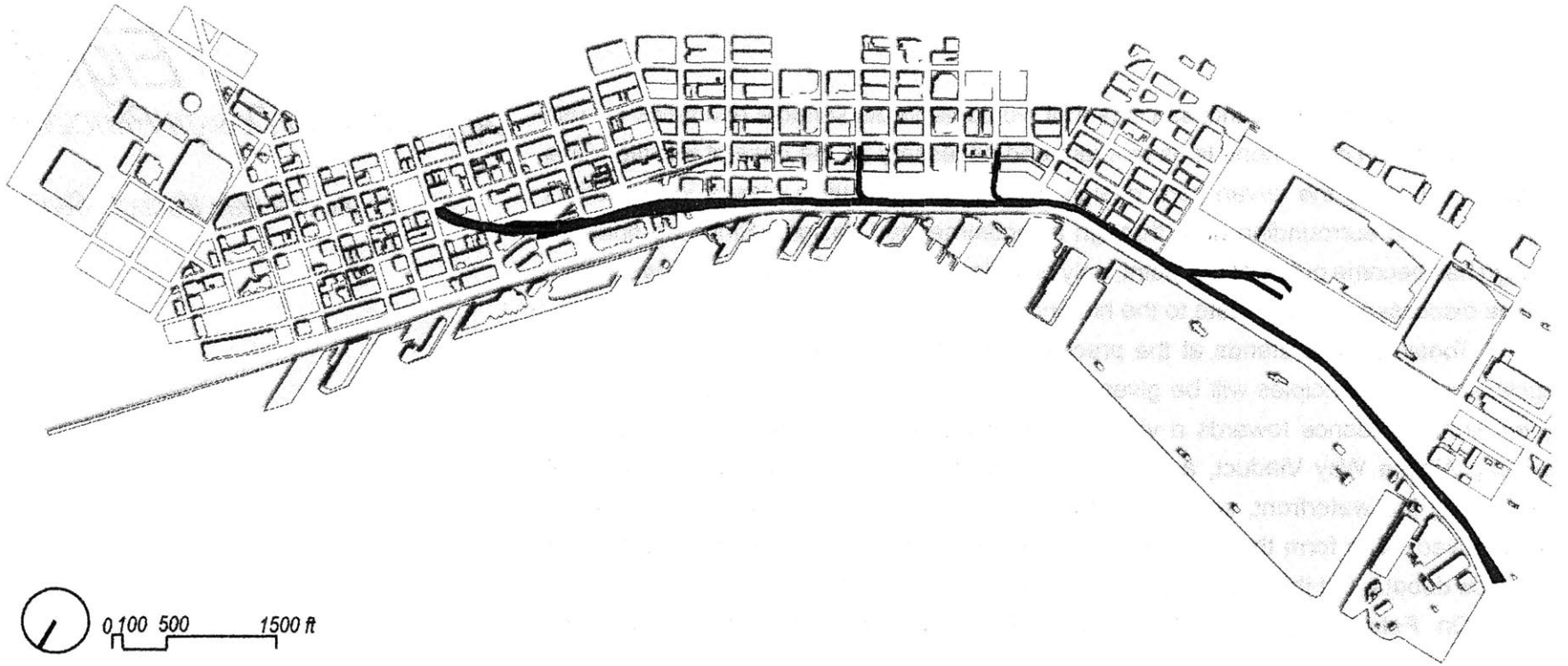
Chapter Eight *Application of Design Principles*

Alaska Way Viaduct, Seattle

structure, not only causing significant cracking in several locations, but also tilting it slightly to the east. Repairs were quickly made to shore the structure for immediate use. However, the repairs provide no guarantee of stability when the next quake hits. To make matters worse, originally the structure was not adequately constructed for its location. The highway bears on land that is primarily landfill, added during the numerous times the

hilly downtown area was regraded in an attempt to make the streets flatter and thus more navigable. When these projects were done, little consideration was given to soil compression, or the debris that was swept into the newly formed land. As a result, the land contains makeshift seawall logs, concrete slabs and other periodic structural attempts to hold the water back, and the buildings up. The Nisqually quake's epicenter was over

The Alaska Way Viaduct runs along Seattle's Waterfront until it moves into the urban fabric at the Battery Street Tunnel.



fifty miles from the downtown, yet this soil condition deteriorated to the point of liquefaction in some locations, increasing the ground acceleration and therefore the damage. After the quake, engineers released a report indicating that there is a 1 in 20 chance that the structure will fail in a more severe quake within the next ten years. Local planners and advocate groups have realized the urgency created by this need, as plans are now being considered.

History

In the late 1940's, it was apparent that the city was outgrowing its existing infrastructure. Caused by a post World War II boom, the city had a large influx of engineers and skilled workers, many working for Boeing, building both bombers and warships. At the time, the city had no north-west arterial. This was especially problematic for a city who's primary workforce lived north of the city and worked south of it. Engineers finally decided that the best solution was the construction of the city's first

highway, directly on the waterfront. Engineers and planners believed that an elevated highway would not damage the surrounding character of the area. In fact, as City Engineer R.W. Fink stated, the waterfront expressway would "achieve good architectural lines without any sacrifice in economy... the structure will not depreciate the appearance of Alaskan Way and the waterfront. On the contrary, I am sure that it will improve it."² So was the story of many North American ports, and by 1952 the Viaduct was opened and hailed as a "motorists dream".

In 1960 Interstate 5 followed, cutting a path east of downtown. Today, this interstate stands as a substantial barrier for easterly expansion of the downtown district. In an attempt to ameliorate its impact, Freeway Park was constructed in the 1970's.

The collective damage that these two highways brought upon the surrounding landscape in the form of noise, air and sight pollution eventually turned the residents of the city against highway construction. The full highway plan for Seattle was designed to

create a web that cut across the city at numerous points. Despite these plans and infrastructure already constructed to accommodate them, the city voted down the construction of the Bay Freeway across South Lake Union, R.H. Thomson highway and almost eliminated a bridge that terminates Interstate 90. By 1975 the Viaduct was considered a symbol of Seattle's problems.³ The built fabric had adjusted to the intrusion over time, generating a dramatic swath of retreating

buildings and irregular edges (Figure 1).

Replacement strategies have been in consideration for many years. Amongst the early recommendations were schemes that would leave the structure, but strip it of its primary purpose. One suggested an elongated urban village with retail, a galleria and condominiums while another suggested using it as a parking garage.⁴ In the early 1990's, a series of businessmen suggested that it should be replaced with underground tunnels.

(1) The figure ground shows the destruction of built fabric caused by the Alaska Way Viaduct.



The latter recommendation was the predecessor to several of the new schemes. Today, four schemes have been proposed:

- *Plan A: New Viaduct.* The existing Alaska Way Viaduct is replaced with a new Viaduct in a similar alignment. The two old ramps would be removed, but two new ones would be added in different locations. The Seneca Street ramp would be replaced with one that could accommodate two-way traffic. Engineers would like to construct a sound wall to limit traffic noise.
- *Plan B: Bridge-Tunnel Combination.* The existing Viaduct would be replaced with a new single-level bridge carrying southbound traffic only. Engineers hope that this new elevated structure would be less offensive as it would require fewer supports. Northbound traffic would run in an underground tunnel.
- *Plan C: Bridge-Tunnel Combination.* This plan recommends an extended

elevated structure beginning further south diving into the ground near the newly constructed stadium complex. Both directions of the roadway would then be constructed in an underground tunnel that would run the length of the waterfront.

- *Plan D: Tunnel.* This plan envisions a tunnel the full length of the corridor. This plan has received the most accolades, as it will provide the most positive long-term solution.

Regardless of which option is chosen, the project is expected to take 8-12 years. As with any large improvement project, disruption is inevitable. With projects of this magnitude, planners must weigh the good of the city over the short term difficulties. The gains that these projects will realize over the long-term life of the city are immeasurable. This is why Seattle planners must discard those options that re-build any semblance of the existing structure, which would result in a colossal waste of public money. If any one reason should be considered

in rejecting the first two plans, it is history. Has the government not learned the lessons provided by this elevated structure? The original engineers neither had the hindsight, or precedent to make their decisions. In addition, the conditions they designed for were far different than those of the bustling waterfront environment that is quickly becoming Seattle's hallmark today. To spend taxpayer money to essentially recreate a dividing wall between the downtown and waterfront would repeat previous mistakes. While politicians are quick to point out the cost of tunnel projects, any of the four solutions will cost billions of dollars. At the very least, this money should be spent wisely, even if it requires more money to do something well.

Past Proposals

One of the most influential projects for the area was the Alaskan Way Waterfront Park Plan. The original report, *The Seattle Central Waterfront: a Study for its Future Comprehensive Development*, was produced in 1971.

The plan looked at several different ways of envisioning an urban waterfront park in the form of three different concepts:

- *Linear Park*. This plan provided a long unprogrammed strip of greenspace along part of the Alaska Way corridor, abutting the Viaduct. The study suggests that this type of plan has a "high visual impact [with] a maximum amount of water available to the public."⁵ It also is capable of affecting the greatest length of land. The plan does not provide for any public assembly areas.
- *Nodal Park*. This proposal places programmed elements on parcels that are most easily obtained and developed by the city. The numerous locations provide for the largest overall impact, as different points all along the waterfront would be affected.
- *Centroid Park*. This plan creates the most compact urban park by assembling land on the waterfront as well as along the edge condition

east of the Viaduct. It provides the best opportunity for public assembly, creating a high visual impact. The plan proposes the least amount of waterfront, providing the minimum positive impact for the surroundings.

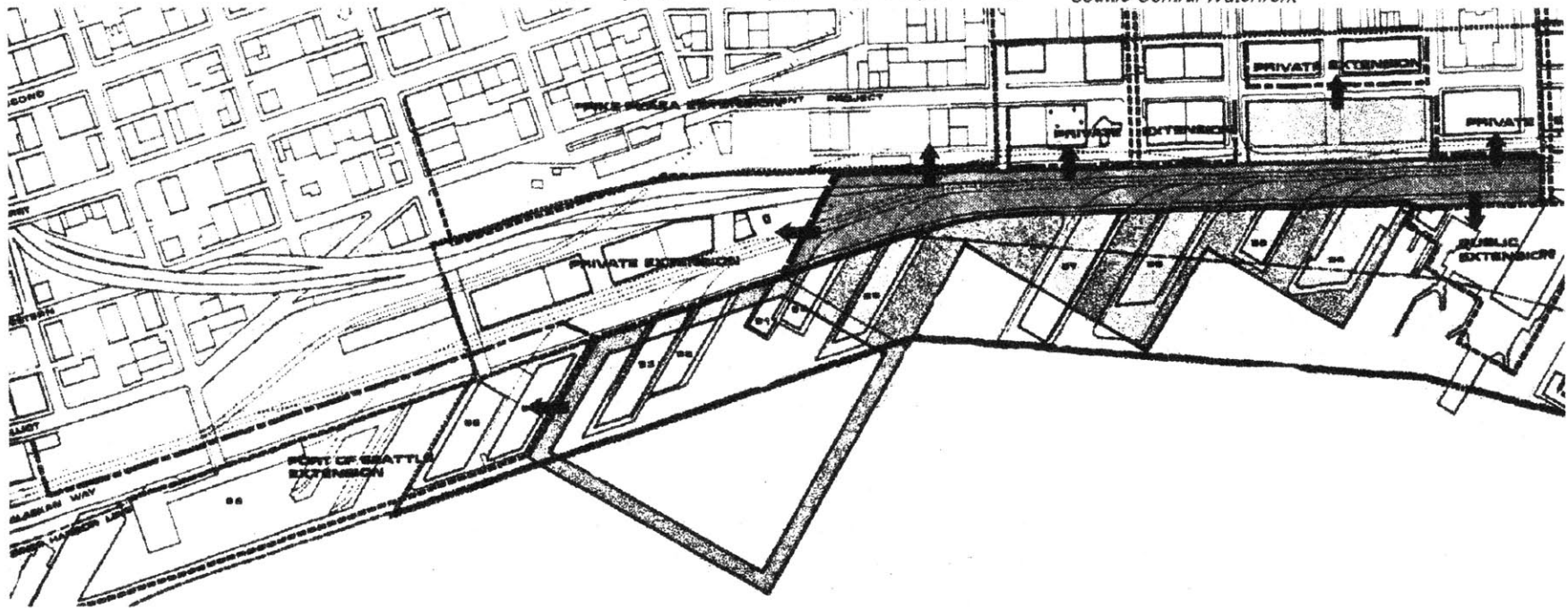
Planners wanted to create a "pastoral park [that] would provide a complete change from the bustle and noise of downtown Seattle." After taking a survey of the residents, the final recommendation was to create an urban

park with the following character:

Although containing the appropriate amenity of trees and landscaping, the park should be primarily active rather than passive, an exciting, intensive-use, multiple-activity urban facility. It should reflect the history of the area as a port and its water's-edge location. It should be designed not only for local and foreign visitors, but as a major activity area for in-city dwellers.⁶

The proposed plan attempted to

(2) The combined scheme proposes an extended waterfront open space accented with activity nodes. Source: Seattle Central Waterfront



synthesize all three concepts, bringing the best traits of each together. The end result (Figure 2) was very similar to the Centriod Plan. The most difficult part of the plan to implement is the various extensions—both along the waterfront through private development, as well as into the city with public money.

Programmatically, the city proposed a mix of services related to tourist activity. Restaurants, retail, hotels, tour boat terminals and an aquarium are several of the recommended uses. Despite what the plan suggests, it is not intended to serve the residents as much as it is designed to boost the city's image by creating a waterfront tourist destination.

Other plans were created as well, such as the Central Waterfront Redevelopment Plan and the Central Waterfront Master Plan, which proposed the creation of a new waterfront aquarium on piers 62 and 63. Each of them recommended strong retail and hospitality uses to accommodate tourism. Both dealt with open space in a similar fashion—in the case of the aquarium plan, a waterfront plaza is recommended with

steps that meet the water. All of the plans propose various maritime programming, taking advantage of location and possible tourist outlets.

While these plans were never fully realized, the waterfront has flourished with a strong commercial retail sector along Alaska Way. Today, the strip is a vibrant combination of retail and restaurants. The viaduct stands beyond Alaska Way, shielding an endless strip of angled parking that extends the length of the Viaduct (Figure 3). Activity is brought through the site by an existing streetcar service that extends north of the site to Myrtle Edwards Park, and to the south, turns into downtown along South Main Street, a block from the new stadium complex. The streetcar tracks sit between Alaska Way and the Viaduct.

Applying the Principles

This thesis will approach the design of the project under the assumption that the roadway is being permanently removed from its current location. A new citizen group, the People's Waterfront



(3) Space under the Viaduct is almost entirely used for a single row of angled surface parking.

Coalition, has started a movement to remove the Viaduct without replacement. Their plan is promising—it proposes using the existing grid, with some modifications, to handle traffic. As we have seen in other projects, the elasticity of traffic has proven that this scheme may very well be successful. The limited entrances and exits off of the Viaduct also raise the question of whether the Viaduct is absolutely necessary. Pundits will cite the 110,000 cars the highway carries each day. However, it is not the only north-south highway; Interstate 5 is larger and much more integral to transportation in the region. New roads increase demand. In a supply and demand relationship, this increased supply will follow with an increased demand until the two once again balance out at equilibrium: the same level of congestion before construction. Thus, while this thesis is not interested in assessing the traffic needs of Seattle, it is important to at least consider a more cost efficient solution to relocation—removal. If this option does not see implementation, the Viaduct hopefully will be rerouted underground in a cut and

cover trench that will double as a new sea wall. Regardless, removal of the Alaska Way Viaduct is eminent, in one form or another; as such, planners of the city will undoubtedly increase their efforts towards designing the new land that is uncovered by this removal, which is expected to begin within the next two years.

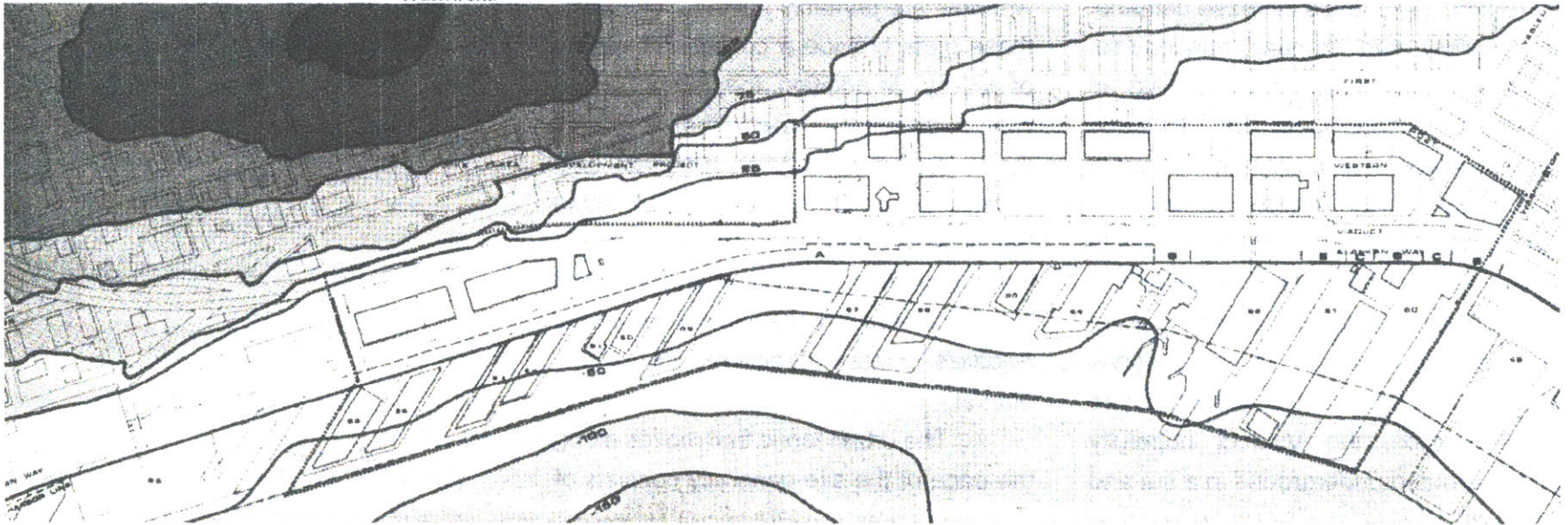
How will this be done? In what way can the city maximize on the considerable assets that already exist on the site? The existing conditions are stronger than most sites in this situation. A strong wharf district extends two-thirds of the corridors overall length. While San Francisco's wharves are primarily privately operated, these piers provide a continuous variety of activity. In addition, they are all linked with a streetcar system that activates the wall of the Viaduct. This not only creates a continuous connection along the wharves, but also ties the corridor into the southern part of downtown. The corridor is also directly adjacent to one of Seattle's primary attractions, Pike Place Market.

The urban fabric that moves along the edge of the site generally consists of



(4) The viaduct stands as a physical and perceptual wall between the waterfront and city center.

(5) Seattle's topography is especially steep along the northern part of the Viaduct. Source: Seattle Central Waterfront.



office or warehouse uses. At the northern end of the site, a number of new residential projects have been built in front of the Viaduct. The urban fabric just south of the sites' midpoint is Pioneer Square, the historic downtown area. Most exciting, however, is what lies at either end of the site. Just five blocks to the north is Seattle Center, the 1962 World's Fair grounds that now holds Seattle's iconic Space Needle. Within the pedestrian square lies an Imax theater, music museum, exhibition hall, the terminus to the downtown monorail system and Key Arena, home to the Seattle SuperSonics. While outside of

the site, it provides an important northern node that has become much of the city's identity, and thus a critical component of any design for the corridor.

At the southern end of the site lies two new publicly-funded stadiums built in the last three years: Safeco Field and Seahawks Stadium. The latter is attached to a new exhibition center that attracts sizable conventions with its 500,000-sq. ft. of exhibition space. The area immediately surrounding the ballparks is largely warehousing that serves both the rail lines and containerized shipping. Surprisingly, the area never attracted

other uses that would compliment the old stadium, the Kingdome.

On the water side of the Viaduct lies Seattle's main containerized shipping facilities. As the second largest port on the West Coast, Seattle is responsible for much of the containerized cargo that goes to the south, as well as all cargo traveling to the Northwest and Alaska. While planners may assume that this area is best left alone, there are possibilities of highlighting the important part shipping plays in Seattle's history, while enhancing the current visual appeal of the operations.

The Alaska Way Viaduct itself stands as a wall 54.5 feet tall, tight against the downtown, 95 feet from the existing seawall (Figure 4). When driving down Alaska Way in either direction, the Viaduct appears as an opaque, faceted surface that extends the length of the city, holding it away from the water's edge. At the northern end of the site, the Viaduct snakes up a steep embankment behind apartments until it dives into a tunnel at First Street. When the highway emerges six blocks to the northeast, it is Aurora

Avenue.

Topography presents one of the great difficulties in the project (Figure 5), especially at the northern end where the embankment is unusually steep, and not suitable for habitation. Along this northern half of the site, the hillside is so steep that it only allows constructed connections in the form of stairs (Figure 6). As the slope decreases to the south, more decorative stairs are provided. Other locations are left with metal stairs, or no access at all. This grade connection failure is especially noticeable at the Seneca Street off-ramp, where the Alaska Way Viaduct makes one of it's few snaking connections into the city's grid.

These conditions provide a complex, yet rich environment for an intervention. The project design will be approached principle by principle, culminating in a theoretical design proposal. The specific details of the project will not be completely described, as this framework only provides the major design decisions. The principles should drive the details, as they will set out the program, goals and design of the



(6) Connecting stairs vary from narrow access routes (left) to grand promenades (right).

area. Any of the secondary decisions will be in concert with the larger plan, thus reinforcing the design as a whole.

Proposal

The project proposal uses the theme of connection to bring together the city's most iconic elements. The skyline is dominated by the Space Needle in the 1962 Seattle Center World's Fair grounds, the two new stadia near the port district and the downtown financial buildings. Seattle tourism is dominated by Seattle Center, the active wharf district on the waterfront, Pike Place Market at the edge of downtown and Pioneer Square to the south, the City's historic old town. These two groupings lie along another line—the Alaska Way corridor. Currently the light rail connections only bring people from the southern part of downtown along the waterfront, and the central downtown to Seattle Center via monorail. This project proposes that the Alaska Way corridor be used as a connector, extended to bring Seattle's iconic structures and tourist activities together, both visually

and through transportation. In addition, the project proposes a more intimate connection between the urban center and the waterfront, which have developed alone for the past fifty years. Amidst these concepts, the plan recommends a new mix of commercial and residential that serves the city, not just tourists. By bringing residents back to the waterfront, the area will be revitalized at all hours, becoming a new neighborhood in the city.

The realization of the corridor as a connecting element will create both a metaphorical and literal spine for the city that will programmatically include more than the collection of tourist and retail activities currently available. The new corridor will be activated by additional uses, bringing residents and workers to the area, as well as visitors. In addition, Seattle's port area will become an attraction as a unique existing programmatic element that will pair with the new stadium complex, creating a pedestrian neighborhood that creates the southernmost node of the project.

Together, these elements will not

only realize a new urban space reclaimed by highway removal, but will strengthen existing city elements and icons, not giving Seattle a new identity, as much as bringing it together and reenvisioning the city's relationship to the waterfront that spawned its establishment.

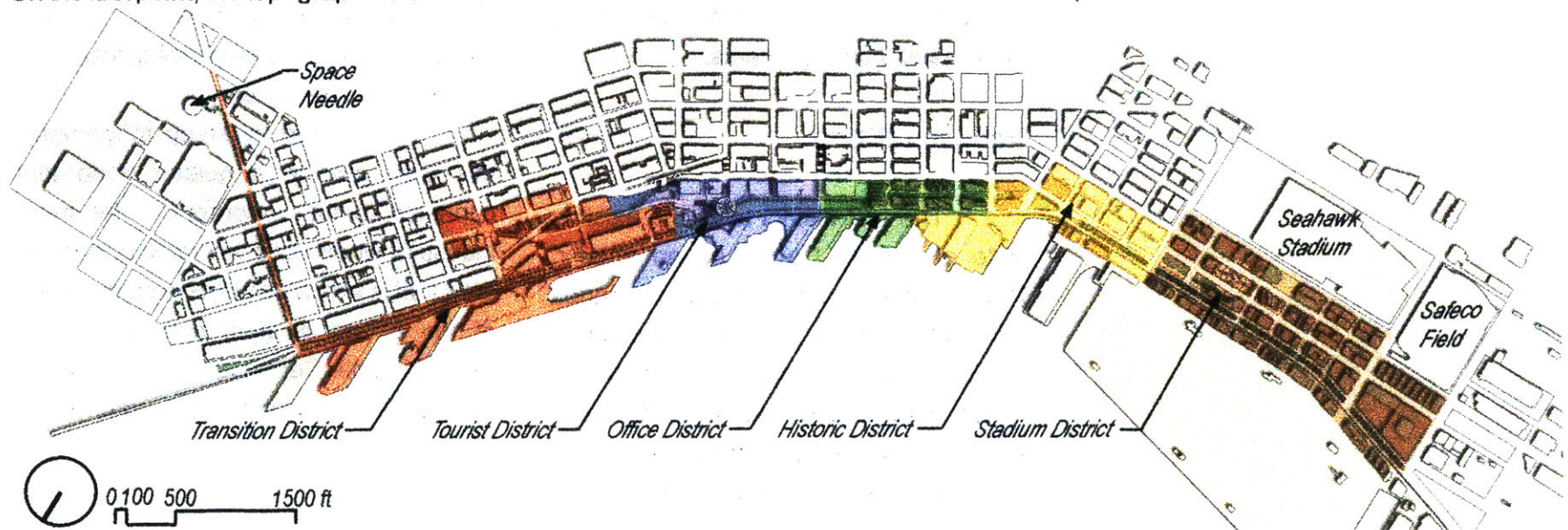
Design Concept

The design concept is twofold: the space should be envisioned as a new development, and it should be composed of districts that relate to the surroundings. On the first point, the topographic variance

at the north, between the downtown and waterfront, make it difficult to find any way to seamlessly continue development. This grade change offers an opportunity to realize new connections that highlight various nodes. As will be suggested in the next section, connection plays a critical part in the consideration of this project. As such, the site should be considered a seam connecting the numerous existing city nodes together.

The districts must be designed to take advantage of the varying conditions that exist along the urban fabric and within the primary tourist attractions of the city.

(7) The five districts that compose the proposed Seattle waterfront Viaduct redevelopment plan connect the Space Needle with the new stadiums to the south.



This proposal suggests that the design armature for this site should contain 5 districts (Figure 7):

- Transition District
- Tourist District
- Office District
- Historic District
- Stadium District

Several of these nodes are existing areas that are considered offsite, and possibly outside of the projects scope. However, these sites are integral to the city, and therefore must be integral to this project which proposes the connection of the city's major iconic elements.

Transition District

The first district uses the existing node of Seattle Center as an anchor. The plan does not propose any changes to Seattle Center, but it recommends an improved connection through Broad Street. This node will act as the northern endpoint of the project spine. When on the project site, the Space Needle will

almost always be visible, providing one of the two bookends of the visual corridor. The Broad Street linkage will be achieved through two interventions. First, the project proposes that it be converted into a landscaped boulevard. As the roadway that connects to Alaska Way, it is a logical continuation of the corridor. In addition, it passes directly adjacent to the plaza that serves the Space Needle, allowing for a direct connection. Secondly, the connection must be made through an extension of the existing light rail system. Currently, it terminates at Myrtle Edwards Park. The rail line should continue to the Space Needle on Broad Street. This will join it with the city's monorail system that extends into the city center.

Dominated by steep topography, this area will be a quieter node that connects to the waterfront. The more industrial wharf uses will remain, and the area that is available will be a continuation of the strong existing hotel base that serves Seattle Center and the waterfront, as well as landscape and commercial uses.

Tourist District

The second district is dominated by the tourism on the wharves and Pike Place Market. The connection between the Market and the site will be crucial, as the current assortment of back stairways and catwalks still denies the relationship between the two established areas. The edge condition on the shelf should be built out to accommodate more commercial uses, as well as office space that can flourish on its location alone. This will be the most active district, and will be the primary connector between the heart of the city and the waterfront.

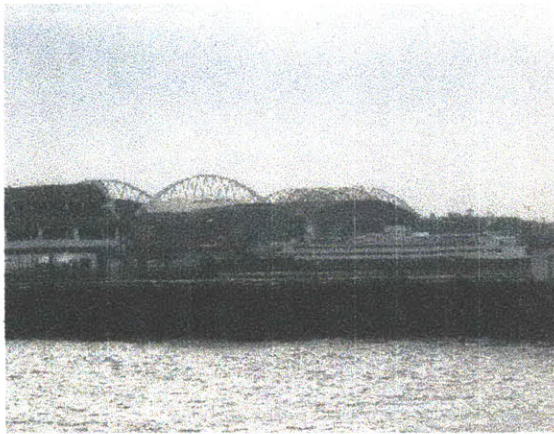
Office District

The third district will be an extension of the downtown adjacent to it. The urban edge at this location is the most nondescript along the corridor, thus the project has an opportunity to create a new node that will invigorate the immediate surroundings financially, and physically. This is somewhat different than the previous districts, as they are designed

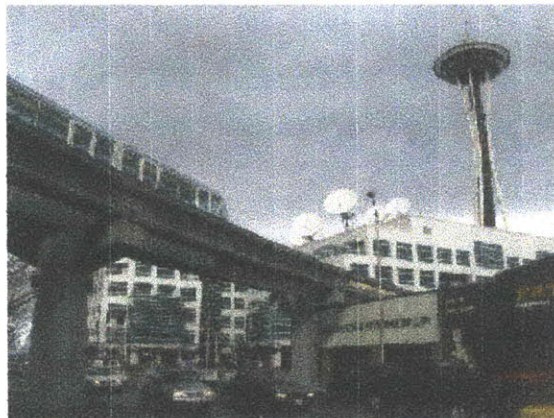
to feed off of the existing surroundings that contain strong character. In the office district, new commercial space and the introduction of residential living will give the location an identity. A new waterfront concert hall will also act as a terminus to the new greenway, while bringing after-hours activity to the area. A group of incubator spaces will attract daytime activity, and bring residents to the waterfront. Regardless of what is chosen, there is the potential to give the area character and make it a vibrant district that branches off of the 1st Avenue retail corridor.

Historic District

The fourth district will enhance Pioneer Square's standing in the city as the 'historical district'. It will take advantage of the historical location by including program that emphasizes the area. This could be done in the form of a museum, historical plaza or the beginning of a city walk, similar to Boston's Freedom Trail. Currently, the area already has the Klondike Gold Rush Museum, the Police



The new sports stadia (above) and the Space Needle (below) create bookends for the site. These endpoints are visible from almost every part of the site..



Museum, the Underground Tour and just to the south the Cost Guard Museum. These all tap into the rich past of the area. A new waterfront museum or cultural center is recommended to help the existing district engage the waterfront.

Stadium District

Finally, the Stadium/Port district provides some of the most exciting and unique possibilities as the site's southern termination. While many may argue that the area around the stadia is outside the scope of the corridor, the area's current malaise cannot be left alone. The untended collection of warehouses, parking lots and gas stations is a missed opportunity. By creating an overall plan for the six-block area, the city can take advantage of a financial windfall created by the two stadia and exhibition center. This proposal recommends that the existing light rail line be extended several blocks south either through relocation or a spur. This will provide a direct connection to the stadium complex as well as the new amenities that will most

likely surround them. Currently, only several restaurants exist in the area, with no residential. This area has the potential to have a renaissance, no different than that of San Francisco's China Basin after the construction of Pacific Bell Park. Like Seattle, China Basin was a warehousing and shipping area with low property value, holding little public interest. Today it has become one of the trendiest places to live within a city known for its residential experience. In addition, local businesses have thrived on the activities created by the stadium. As a result, numerous new restaurants have opened in the last four years, which not only serve game day users, but the now bustling residential neighborhood around it.

Secondly, this area has the chance to tap into an unusual trait of Seattle—an urban port. While many might find this a noisy inconvenience, several European cities, most notably Genoa, have made the port an integral part of the urban experience. Even Seattle at one time included an elevated public catwalk that allowed for viewing of port operations. These functions fit in ideally with the

'gritty' loft residential living experience successful around urban ballparks. The area could also see an influx of hotels for the exhibition center, opening up a new growth center for the city.

Few city's contain the rich possibilities inherent in Seattle's waterfront. This plan proposes a vibrant connection that brings together existing amenities and realizes new opportunities, especially in the southernmost stadium/port district, that would not otherwise have the public or financial capital to proceed. As a spine, this project can author a renewed understanding of the city through an urban seam that is different, but complimentary to its surroundings.

Connection

Latitudinal

If any singular principle is important to this project, it is connection. The site is inundated with opportunities to bring the vibrant adjacent areas together. The most crucial connection is that of the waterfront and city. The corridor

represents the possibility of rejoining these two elements, making the waterfront part of downtown. The task in this lateral direction is not achieved simply through removing the Viaduct. The topographic differences between the waterfront shelf and the hillside must be bridged. Currently there are a variety of outdoor pedestrian connections that range from simple stairs to an elaborate connected walkway that not only spans the two roadways, but also continues above ground for two additional blocks (Figure 8). Several connections include elevators and winding stairs, while others with less height difference have wide landscaped stairs that connect and serve businesses at varying intermediate levels. The most critical points lie where there is little or no connection. In some cases, there is just a concrete wall that creates a dead end ally on the waterfront level. Outdoor stairs and elevators are not the only solution to solving this dilemma. In places where an abrupt wall already exists, there is an opportunity to build a structure that uses both levels, and creates a public indoor connection. This would allow a common



(8) Pedestrian connections do not occur only as stairs. Some connections at the northern part of the site incorporate a vertical stair with elevator for accessibility (above). Ad hoc solutions such as the one below connect to the side of existing buildings, and horizontally stretch two or three blocks.



program to physically connect the hillside and waterfront as well as provide programmatic continuity in an effort to bring the disparate conditions together. Even where there is a pedestrian stair, the nature of the 1st Avenue retail corridor is vastly different from Alaska Way. These are two very different commercial experiences with no real connection. Buildings that offer program and connection could provide specific points where these two experiences are brought together while forming common access points.

In many cases, the concept of extending the city grid into the site must be considered. The existing plan attempts to do this at numerous locations by leaving property at the grade change vacant. This facilitates a visual continuation of the street towards the water. On the waterfront shelf, the street is usually continued in name as a stub that is part ally, part parking aisle, eventually ending at Alaska Way. These stubs do nothing to contribute to the overall reading of the space, and the excessive number of roadway stubs that lead to dead end alleys only creates undesirable

and possibly dangerous spaces. Thus, the prior proposal to allow programmed buildings to form the link will remedy the problem by infilling the ally and creating a usable connection that adds value to the site. However, the buildings should be designed to allow some type of visual connection to remain, whether that is in the form of an arcade, or clerestory that allows visual continuation.

Longitudinal

The second major connection opportunity is longitudinal, down the length of the corridor. This is already done successfully with the existing light rail system that links the site to downtown. A more extensive proposal would allow for additional connections that would take advantage of the city's existing assets. The Alaska Way Viaduct corridor should be used as a connector, with Seattle Center being the northern most node, and the stadium complex being the southern node.

The connection between these two end nodes will also occur visually. The Space Needle and stadia on either

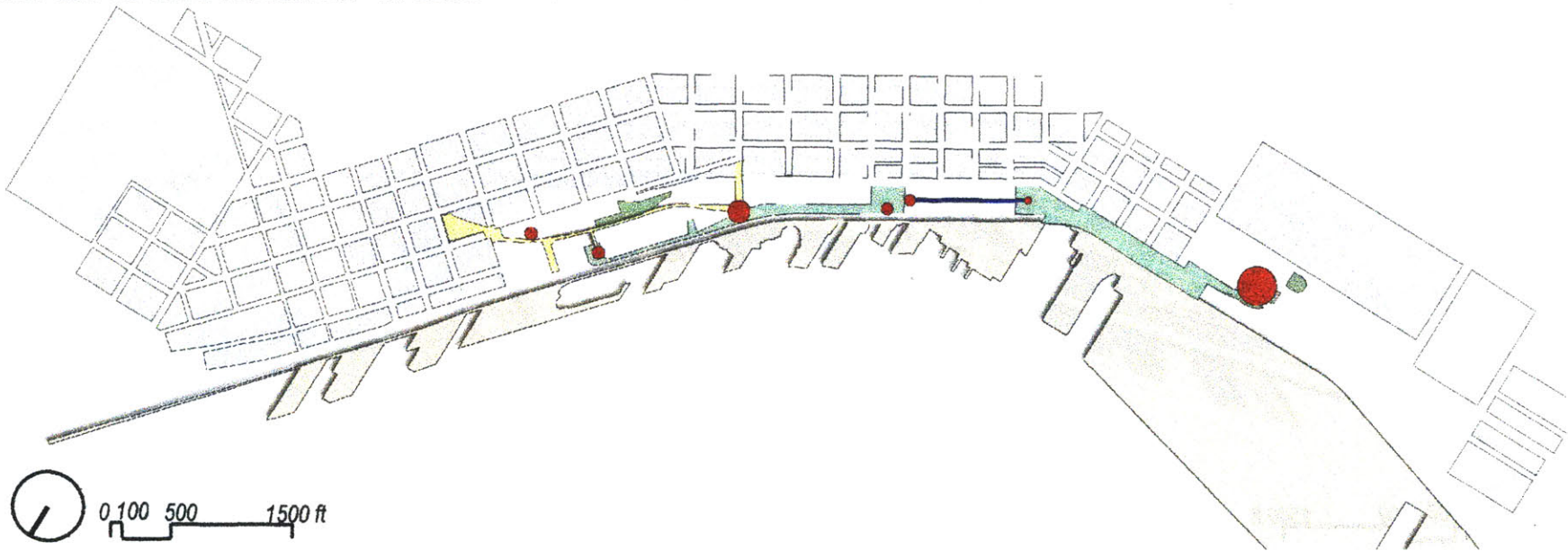
end will provide bookends for the Alaska Way Corridor, creating visual endpoints for the project, and symbolically linking the most iconic structures of Seattle. This must also be carried out on ground level by identifying the link, even if only through a landscaped boulevard. This proposed connecting path is shown in the illustration provided (Figure 9).

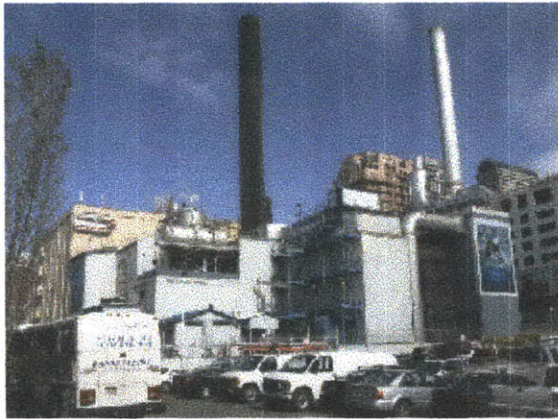
Finally, the site is connected through the repetition of a geometric shape—the traditional compass rose. This symbol fits well with the city, and provides a specific detailed element that can be used repetitively. In some

instances, only a circle is used. In two places the compass rose is imbedded in the paving of an area. As visitors traverse the site, they will become aware of this shape, bringing continuity to the site as a whole.

Regardless of how Seattle Planners view this project, connection must be integral to the design concept. Failing to acknowledge the surroundings and using the site to relate them to one another would be a lost opportunity.

(9) Connection is achieved through a series of overlapping paths and the repetition of an iconic shape—the circle. The path is composed of both hardscaped (yellow) and landscaped (green) portions. The hardscaped route is a new Eliot Bay overlook with panoramic views.





(10) Industrial buildings are the primary building typology on the waterfront shelf adjacent to the Viaduct.

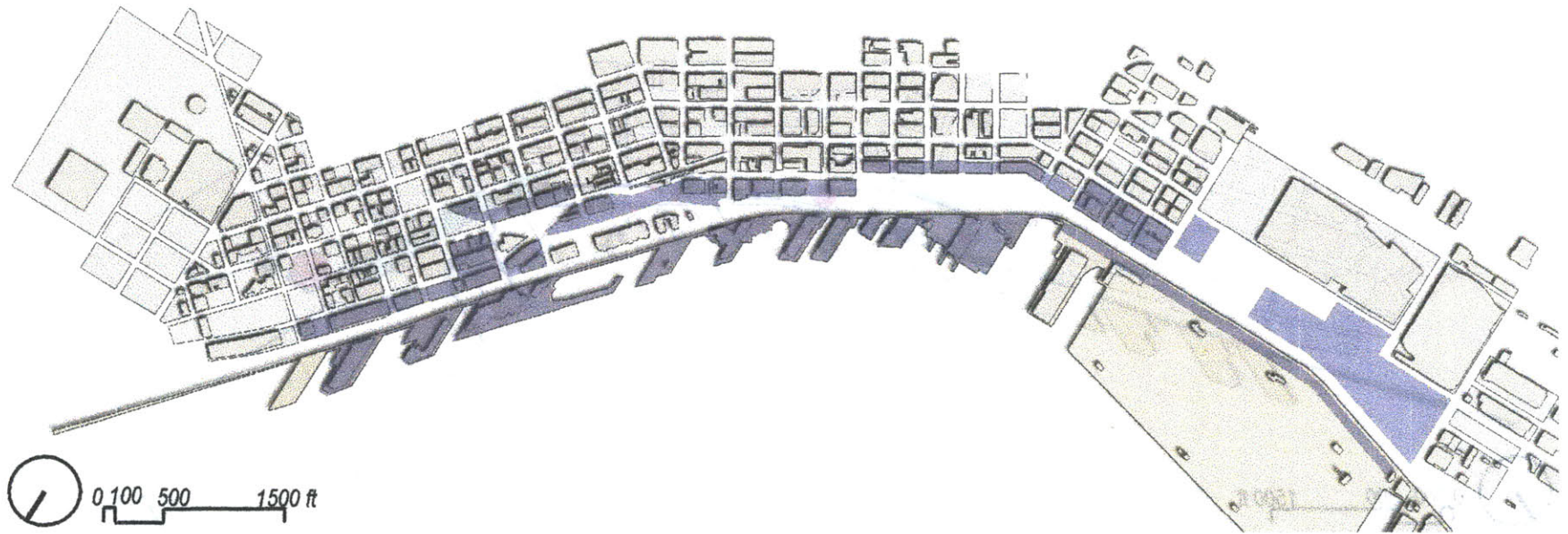
(11) Identifying the edge condition (shown shaded here) is critical to creating a successful intervention. In some cases, the edge condition extends beyond the immediate parcels, into larger underdeveloped areas, such as the Stadium District.

Edge Condition

The unusual topography requires a strong edge condition design strategy. With the northern half of the site abutting a steep embankment, the edge is well defined, but poorly executed. Near Pike Place Market and the city center, the edge is primarily expressed by a series of industrial buildings (Figure 10) and concrete retaining walls. This project should consider the primary edge as those buildings directly against the embankment at the northern end, and all buildings west of Western Avenue in the southern half of

the site (Figure 11). To be comprehensive, the planning department should consider all blocks from the highway easement east to 1st Avenue, a primary retail corridor. This proposal recommends that the edge be used as a primary design feature. By defining the edge of the hill with a pedestrian promenade that ties into the pedestrian pathway and park system, views to the bay are maximized, and the city's unusual topography is celebrated.

This proposal also recommends that the local planning department create urban guidelines, much like those created by Milwaukee for the Park East Corridor.

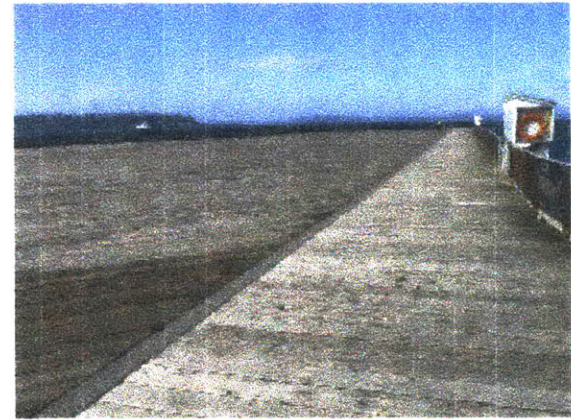


These guidelines should create a very different urban character than that of the existing fabric. The two separate city heights present an opportunity to envision the new development on the waterfront shelf as a different condition than that of the existing city on the hill. This concept should be carried through the southern portion of the site, as the new development should be designed to compliment, not rival the historic Pioneer Square area. By the time the site reaches the Stadium District, the existing fabric is so fragmented that any collective development project will separate itself from its surroundings.

The edge condition on the waterfront side is already well-considered, although residents are interested in seeing more local activities and fewer tourist destinations. Tourism generated from the existing wharf district needs no additional stimulus, and it provides a suitable interface with the water. Another criticism that could be made along this area is the pedestrian interface with the water. While the waterfront is always visible as a result of low density, there

are few opportunities for pedestrians to sit along or approach the waterfront. The only real park lies just north of the site. Its heavy use reinforces the need for this amenity. While the existing wharves are mostly occupied, several are not (Figure 12). The city should use one of the existing wharves as a pedestrian plaza or park that allows direct interface with the waterfront. Additional points of contact or sitting could be provided at the larger separations between wharves.

The most untapped potential lies at the western portion of the southern district where the active port meets the site. This area must be maintained as a functional space, requiring roadway and rail connections. These can be largely maintained in the existing format by ensuring that suitable roadways are maintained to allow for connection to the Alaska Way Viaduct once it returns to ground level, as well as connections to the adjacent rail lines. This edge does not have to consist of shed warehouse structures that serve the port. New office and commercial uses could be used to form a harder edge along the port district.



(12) Several wharves remain unprogrammed, but accessible.

Taller buildings would help shield the site from noise while providing intriguing views to the activities in the port area. Several restaurants could take advantage of these views if the corridor was capable of maintaining sufficient pedestrian flow and interest to encourage people to travel to the southern end of the site.

The slenderness of the site makes the edge conditions paramount in design considerations, as anyone on the site will be no more than a hundred feet from either edge. The site contains unusual edges that designers should take advantage of—the existing character of the surroundings can be used to create interesting continuations and connections that extend off-site. The edge must also moderate between the differing grade conditions. Through the use of effective regulation, these edges can become the beginnings of a new development pattern as it differentiates itself as a typology separate from the existing hillside fabric.

Morphology

Open Space

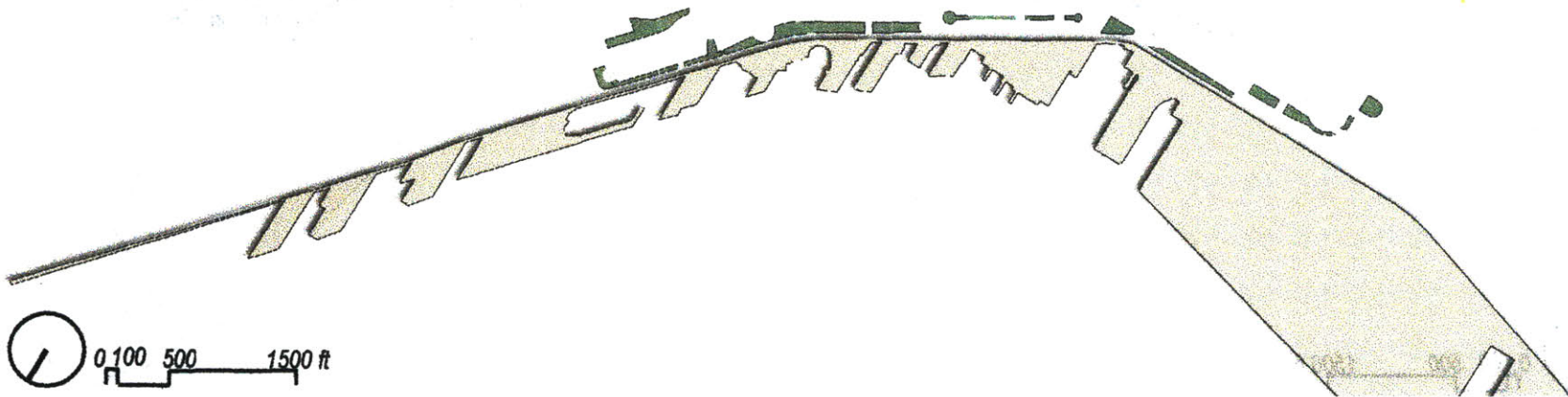
When studying the Seattle plan, San Francisco's Embarcadero immediately comes to mind with its wide boulevard and transit line. Seattle is very indebted to this solution, yet it provides an opportunity to handle the design with more thought than what was done in California. As will be recommended in the segment on transportation principles, this proposal suggests that Alaska Way be reduced to a 2-lane roadway, with one parking lane, switched to the eastern side of the roadway. The existing light rail transit should be relocated to the western side of the road, along the existing boardwalk. What is left is a more compact transportation spine that allows for a broader canvas to create meaningful interventions that tie into the city fabric. There is no doubt that the wharf area is a separate and distinct typology from the city fabric. For this reason, it is not necessary to bridge the differences. The transit spine is part of the wharf district, as

it enhances its character and functionally serves it.

The combined distance from the waters' edge to the eastern curb of Alaska Way is approximately 78 feet, with the rail line using another 20 feet, and an additional 20 feet allocated to a walkway between the Viaduct and rail line. With this revised plan, the boardwalk area would not be reduced, 10 feet would be allotted for the rail line, 34 for the road. This combination equals only 64 feet as opposed to 118 in the existing plan. The additional walkway next to the transit line would not be necessary, as the boardwalk area would serve this purpose. With the transportation spine in place, the site needs little else to create an overall

connectivity. The open spaces should be provided as pockets (Figure 13), taking the character and form of the district, rather than using the Boston example where the site is tied together by a unifying park that leaves little room for anything else. The site should be connected with a pedestrian pathway that provides access to the new buildings on the sites eastern face, as well as a continuous longitudinal connection that creates a secondary path away from the waterfront.

(13) New park space is a primary, but not dominating feature--it acts as a connecting element that weaves throughout the site.

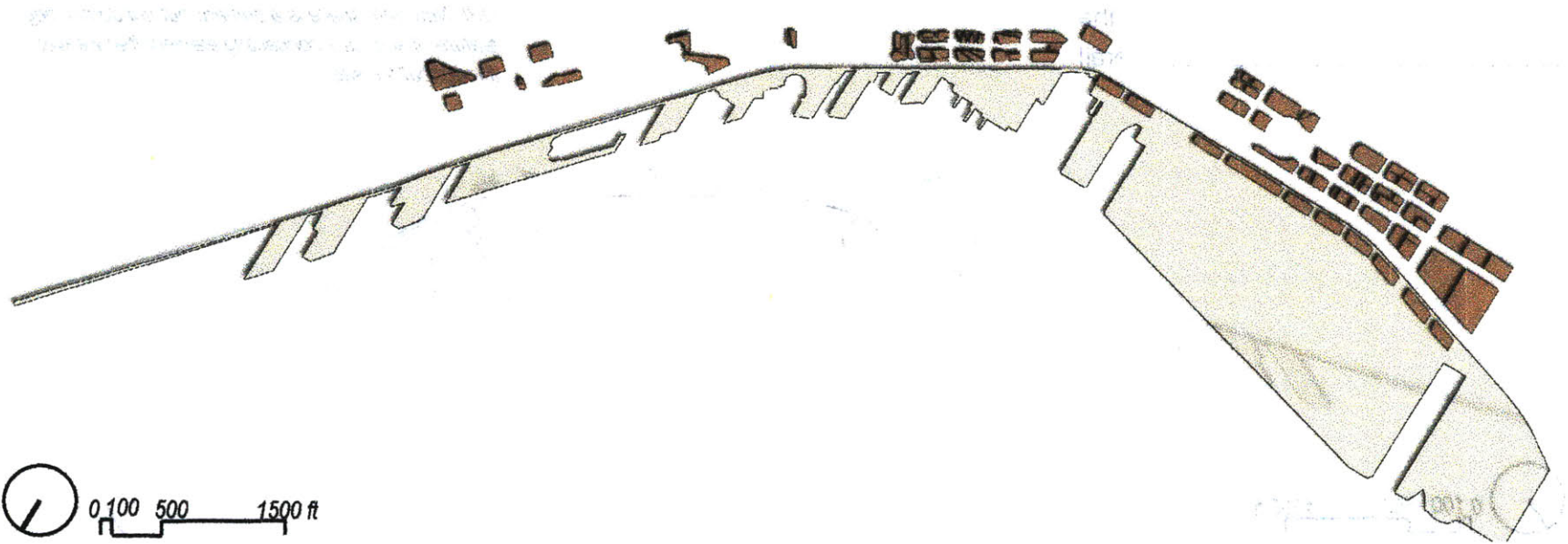


Programming

There are several opportunities to provide more dominant buildings and programs, allowing the space to read as a separate entity from its surroundings. In the case of the third district, these uses should be more dominant in general, as the surrounding area would benefit from a catalyst. This proposal recommends identifying permissible building typologies, then aligning them with the districts where they are permitted. The resulting building

massing is shown in Figure 14. This is only one possible outcome, and assumes particular government decisions about existing parcels owned by other entities. This technique was used effectively in Milwaukee, and will provide the first form based controls on the site, ensuring that an appropriate urban grain will be used. This grain is not necessarily intended to match the surroundings as much as compliment them. As can be expected, the southernmost district contains larger building typologies that could take entire blocks, and as the plan moves north, the

(14) The building typology generally matches the surroundings, with the exception of the office district.



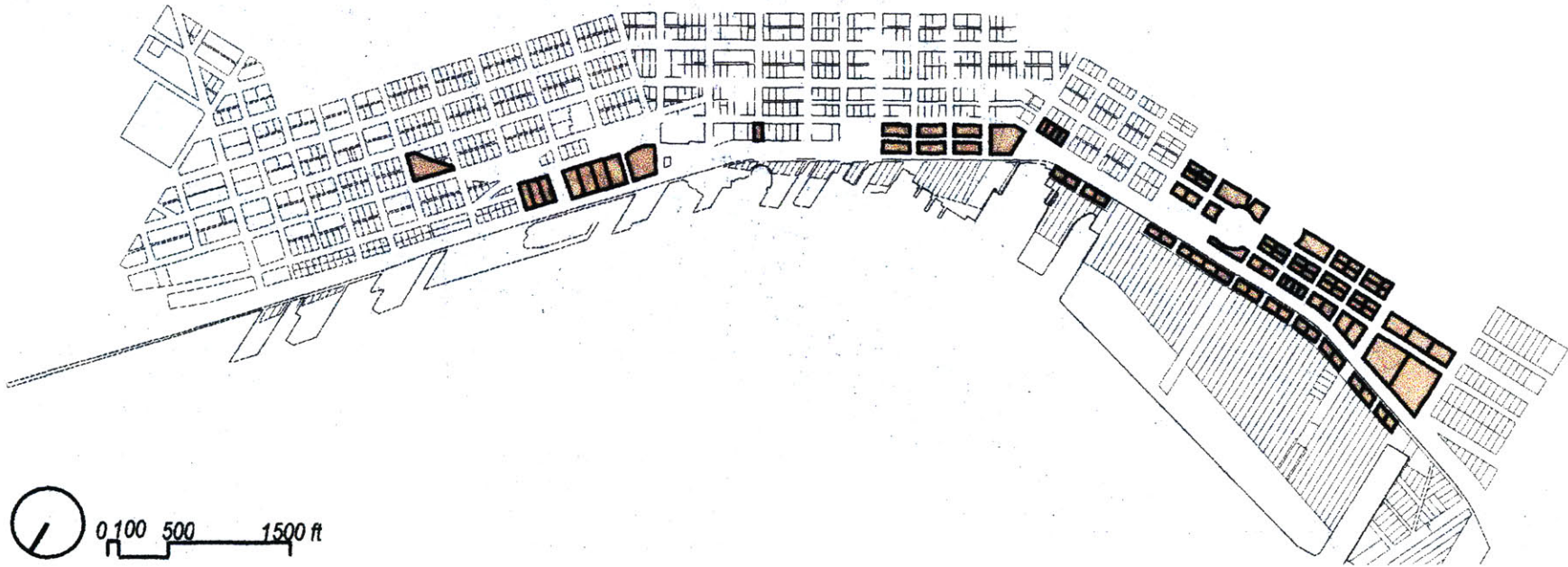
building typology switches to smaller parceled buildings.

Many engineers and storeowners may argue vehemently to one aspect of the plan—removal of parking, primarily from under the viaduct. As it is currently laid out, this parking is an incredibly inefficient use of the space—designers were only able to manage one row of angled parking under the highway. This land can be used to garner a large tax base, and provide life to the area that will bring more people to the neighboring businesses. The plan allows for the construction of new garages

if they prove to be the best and highest use of land.

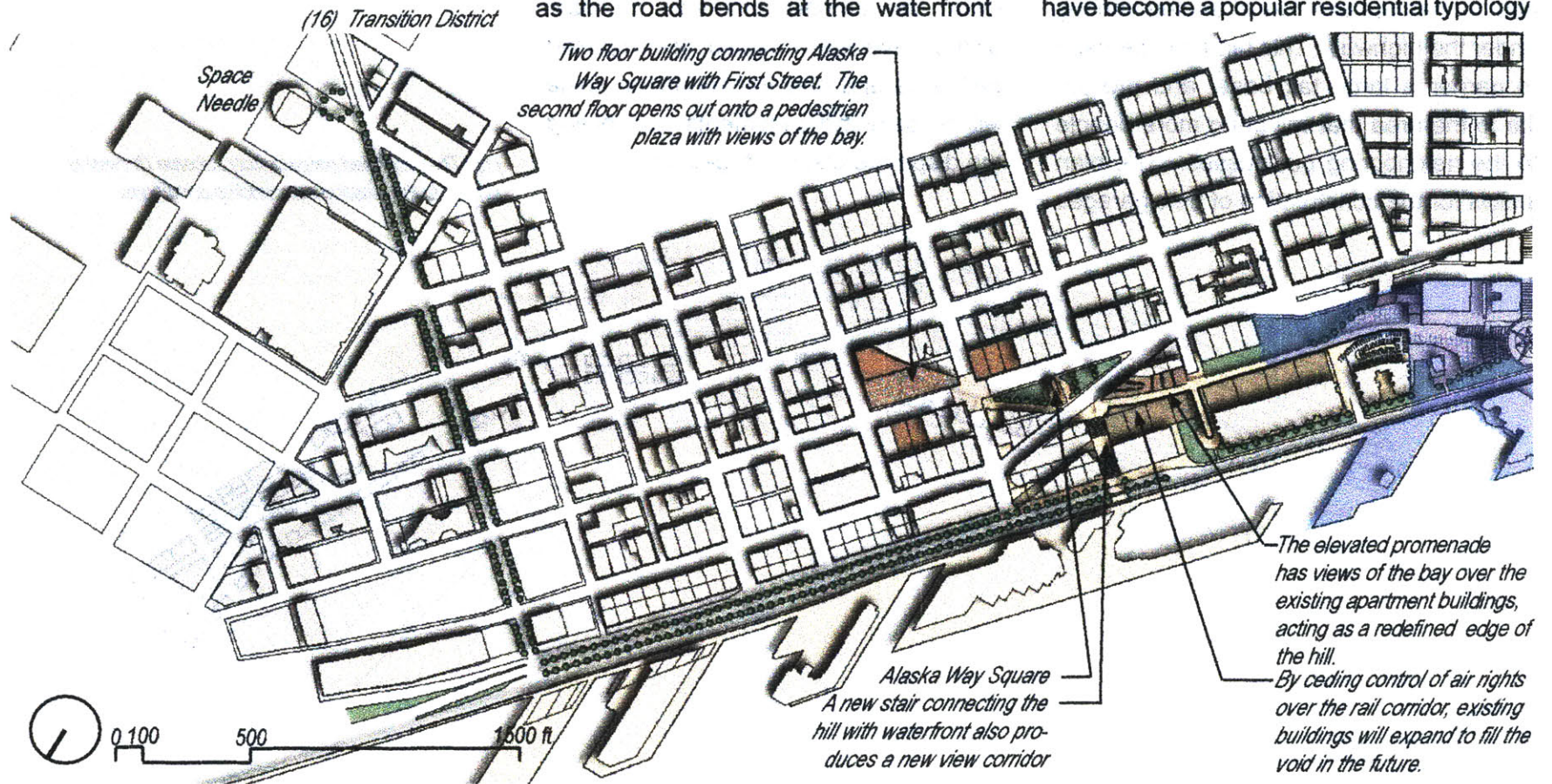
Proposed programming and parcelization must be discussed on a district by district basis, however the parcelization will generally be similar to the surroundings (Figure 15), while programming will tend to be more unique. Once the primary elements of each district have been outlined, the proposed pathways and new transportation spine will act as unifying elements, connecting the disparate districts together.

(15) The proposed parcelization scheme (brown) is similar to the existing surrounding conditions.



District 1: Transition District (Figure 16). The plan proposes a landscaped boulevard on Broad Street, with the existing transit line extended along its northern side. This boulevard should be appropriately landscaped with street trees and a median if the overall width will permit. Landscaping should continue as the road bends at the waterfront

becoming Alaska Way, until it reaches the first of the latitudinal connectors. The existing uses on pier 67 and 69 will remain, as they serve the tourist industry with an ideal location on the waterfront within a short walk of Seattle Center. The residential buildings along Alaska Way should remain. These waterfront residences (Figure 17) have become a popular residential typology



within the city, taking advantage of the city's climate and views while effectively blocking the Alaska Way Viaduct from view. With its removal, the hillside behind it will be virtually unusable. The hillside is too steep to accommodate any realistic building proposals, and at the base of the hill lies an active industrial rail line that cannot be moved. In the future, buildings residing in the parcels along Alaska Way may be able to capture the railway air rights, allowing for the creation of buildings that are built to the slope.

The district's central node is the triangular Alaska Way Square, created from a group of deconstructed lots under the highway. This new greenspace is part of the linear connecting pathway that follows the old highway. One existing building at the square's southern edge has a tall, blank wall that can be used for murals by local artists. The park will raise the quality and value of the surrounding parcels, creating a new node in a place with little character today.

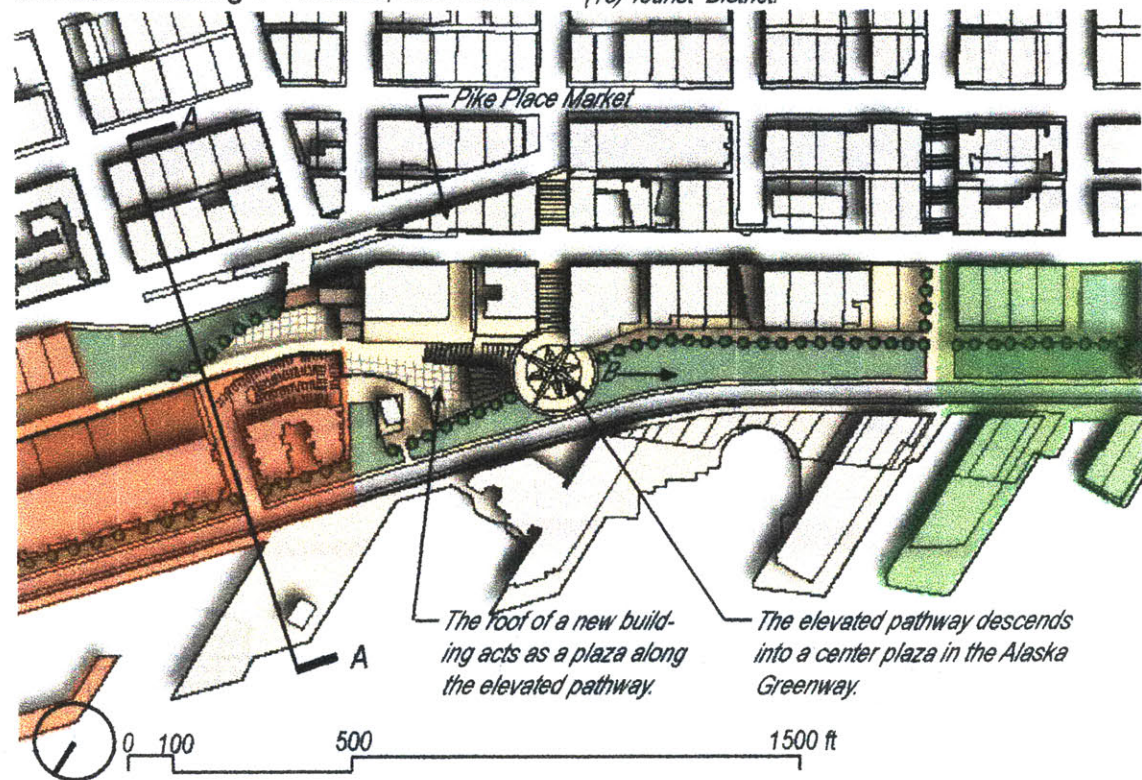
The only other parcelization consideration in this area exists in the blocks where the roadway goes into the Battery

Street Tunnel. This two-block area on 1st Avenue and Bell currently contain several regular and one wedge-shaped building on the south-eastern corner of the 1st Avenue block, separated from the other two blocks by a retaining wall. This separation provides a more level site than would usually exist at this location. Thus, the proposal recommends leaving the area a single parcel where a building can be built along 1st Avenue, with street



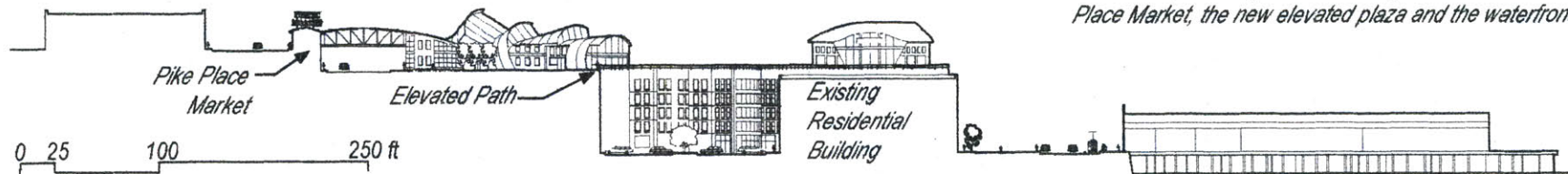
(17) The existing residences consist of new buildings all within the typical Seattle housing typology.

(18) Tourist District.



access, while also opening up into a larger plaza a floor below at the lower grade. This plaza will most likely be a rooftop plaza, as the slope will allow for another level to open onto Western Avenue.

Perspective B shows the new Alaska Greenway, with views of the stadia and a retail corridor opening onto the promenade.



District 2: Tourist District (Figure 18). This district also shares a dramatic topographic barrier. However, at this point the slope has transferred into a retaining wall that has buildings constructed against it. At the center of Pike Place Market, a pedestrian stair provides a connection at Pine Street, called the Pike Place Hill Climb (Figure 19). This proposal recommends continuing the stair across Western to make a formal direct connection with the Market. This area also has the opportunity to create a stronger overall connection between the Market and waterfront through additional retail and office space, creating a corridor perpendicular to the highway corridor. The termination of this connection is the Seattle Aquarium, which stands amongst the wharf district, directly on axis with the Harbor Hill Climb. The hardscaped portion of the plaza is a paved compass rose, recalling the nautical history of the city. The proposed greenway promenade will draw high-end

Section A-A, Showing the relationship between Pike Place Market, the new elevated plaza and the waterfront.

retail as it lies between the cities primary attractions, with the rail line available to easily move about the city. Unfortunately, the building stock in the area is not strong. Consisting of large warehouse and industrial buildings, many of them will ultimately need to be removed.

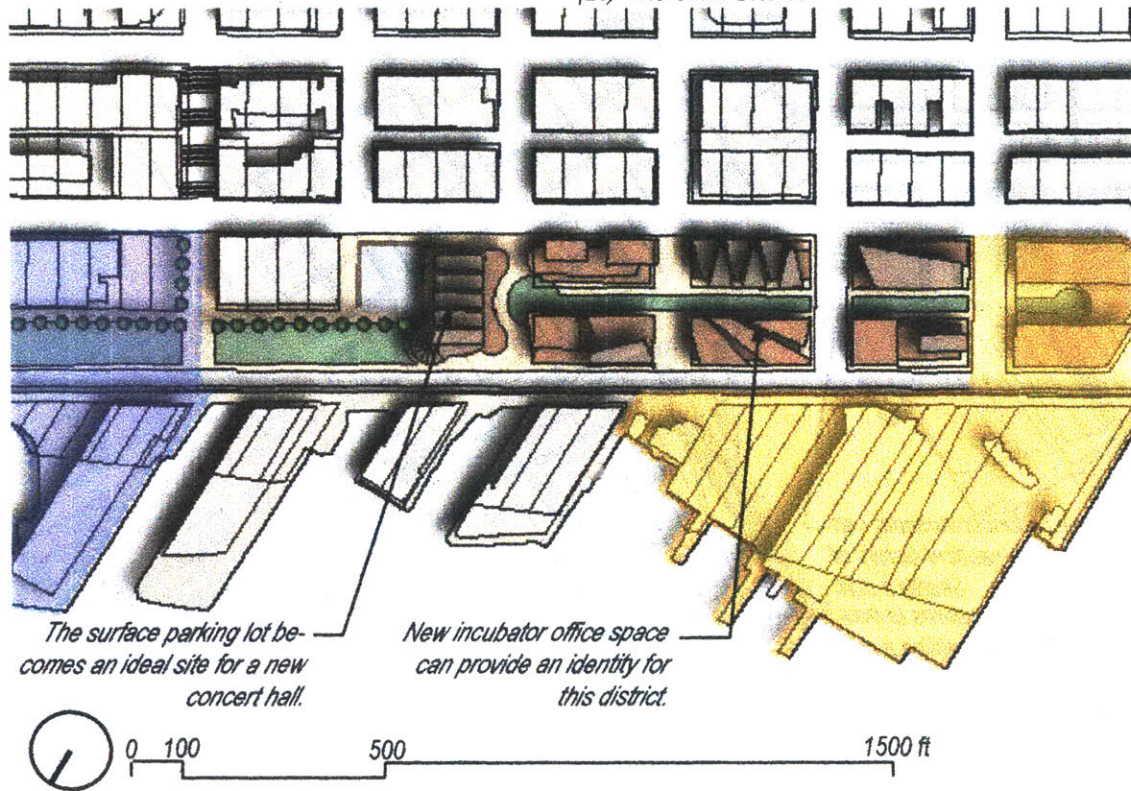
Parcelization in this area will need to be immediately prepared and sold. This will be the fulcrum for the entire site's development, as the most popular current location. New uses and developments will grow along the spine as the area becomes more popular, and thus more desirable for developers. The government may need to provide incentives to encourage immediate development of the warehouse and industrial buildings. All of these sites must be carefully controlled through urban design guidelines. Development that radiates from this location will eventually meet the new development that grows from the fifth district, a primary residential/artist loft area.

District 3: Office District (Figure 20). Beginning roughly around University Street, this area currently is dominated by

warehouses, parking and office uses, with the urban fabric stopping abruptly at the retaining wall in some locations (Figure 21). The area requires better connections between 1st Avenue and the waterfront shelf. The greatest opportunity in the area lies in a surface parking lot between Seneca and Spring Streets (Figure 22). This lot has the potential to provide a substantial open



(19) *The Pike Place Hill Climb.*
(20) *The Office District.*

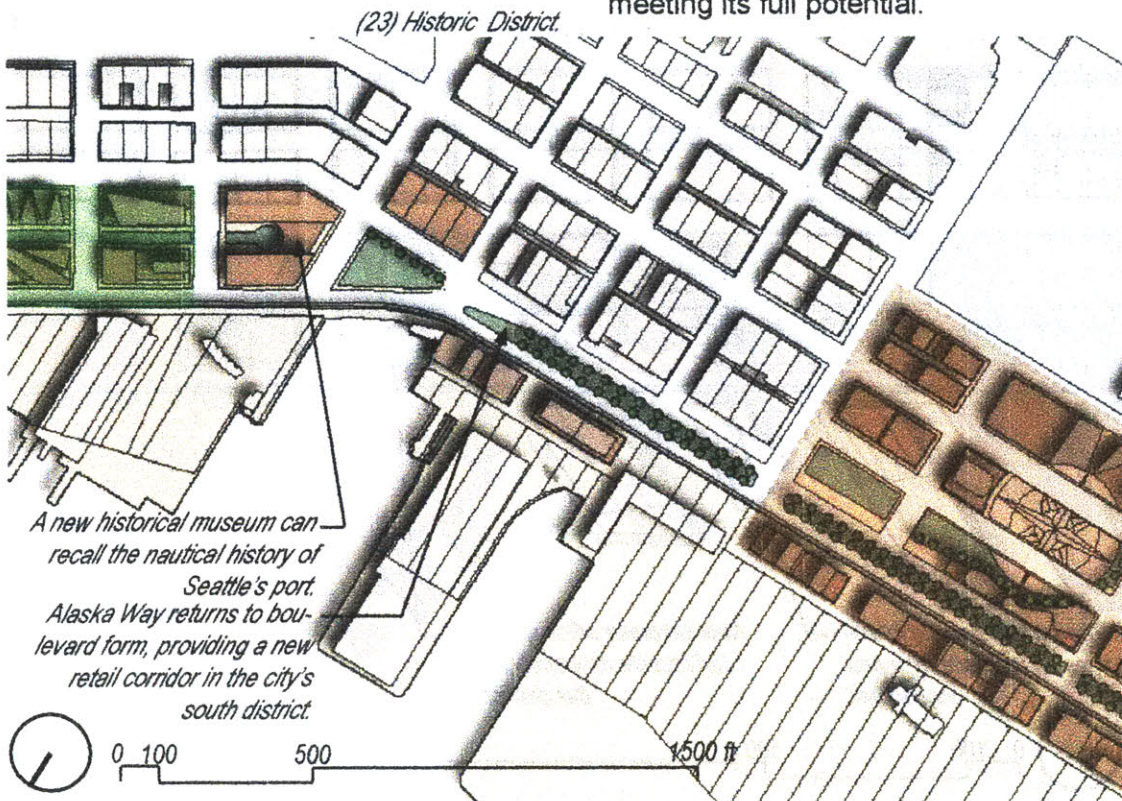




(21) A number of streets provide only minimum connections between the city and waterfront shelf.

space or programmatic feature. This proposal recommends a series of incubator spaces, and a signature concert hall acting as a terminus for the greenway. The incubator spaces could be inserted into the existing office stock, or in new structures as the proposal indicates. This district is an exciting opportunity to form a new vibrant part of the city that is currently active, but not meeting its full potential.

District 4: Historic District (Figure 23). By the time the site moves south into District 4, the city topography has leveled out. The abutting area is Pioneer Square, the city's historic district. The plan proposes to capitalize on this historic area through a combination of innovative programming. This area has the opportunity for an iconic building to act as a cultural center. Any number of programs could work in this location. With the concert hall in the office district bringing evening activity to the area, this plan recommends a cultural center or museum for this site.



The other buildings in the area should be designed to blend into the historical fabric as contemporary interpretations that compliment the existing fabric. The suggested uses are office space, branching off the programs from the third district, and residential housing and loft space that will branch into the fifth district. These will exist around the iconic public uses in a mix driven by market demand. Greenspace is provided in a triangular lot that has a direct view of the bay, acting as a hinge for the greenspace plan. The Alaska Way

transforms back into a tree-lined boulevard in this area, making an attractive retail corridor.

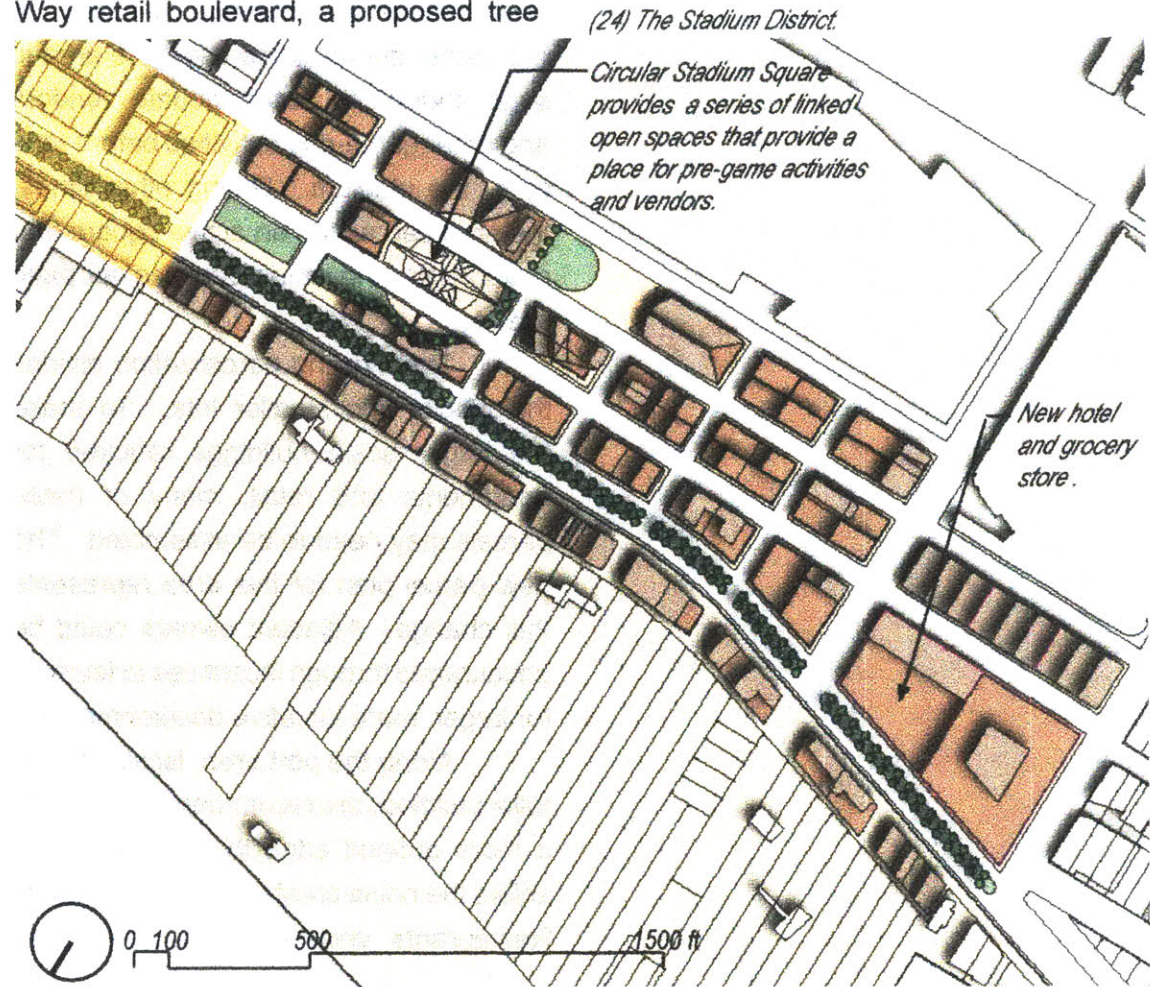
District 5: Stadium District (Figure 24). Construction of the two new ballparks and exhibition center allow for new development opportunities that can make the area a vibrant neighborhood that is active every day, not just game day. Using San Francisco's China Basin as a prototype, the area should be infused with a strong residential element through apartments, condominiums and artists lofts. Since these existing uses do not currently reside on the site, the government will need to take at least one large parcel and team with a developer to create a catalytic development to begin the formation of the area. With



(22) A surface parking lot presents an important opportunity for immediate implementation of a new programmatic element.

residential uses, new office and service oriented retail should be provided to create a gritty live-work environment that draws recent graduates and artists.

The area is large enough to have two nodal areas. The first is the Alaska Way retail boulevard, a proposed tree



lined divided road. New retail outlets can locate along this road to take advantage of the southern half of the city. The second node is the termination of the connection pathway system, symbolized by several connected hardscaped plazas. These open spaces are intended to serve the two stadia during game day—the area is large enough to accommodate vendors and other game-day activities before fans enter the stadium. During other times, the area can act as an active square that restaurants and cafes can use as patio space.

The existing parcelization divides the blocks into smaller lots. To make the larger scale buildings required for apartments and retail, many of these parcels may need to be assembled. The new parcel plan for this area represents this change. Adjacent owners could be encouraged through incentives to team up for larger, more lucrative developments.

Along the port area, large, slightly taller buildings are recommended to create a more defined edge that will also help shield the noise created by port functions. Restaurants and offices could occupy

these buildings, in some cases taking advantage of the unique views of the port operations. This is a rare opportunity that must be taken advantage of—few cities contain active ports, and those that have them attempt to relegate them as far as possible away from urban uses.

Regulation

The Milwaukee case demonstrated how stringent urban design guidelines can be used to control the unbuilt environment. This project proposal recommends that Seattle create a similar set of documents that outlines all of the private parcel guidelines. The guidelines must be done district by district, understanding each for its own design mentality related to the surroundings. These differences may be somewhat subtle, but they will provide the rich texture necessary to make a vibrant corridor.

As expressed in the previous section, the proposal recommends identifying acceptable building typologies for each of the districts. This plan suggests following the Park East Redevelopment

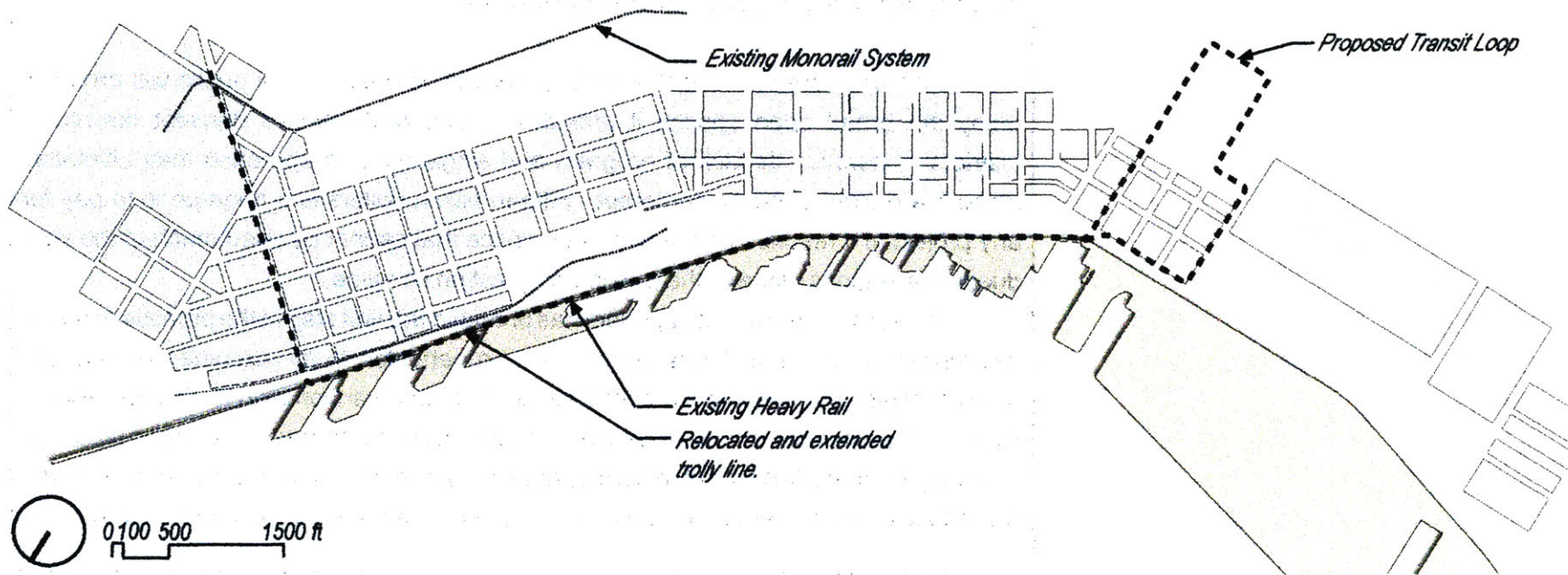
model: create two or three general zones that span the site; use the urban design guidelines as the directing documents for regulation. Regulation should be handled on a small-scale basis throughout the site, rather than blanket regulations that provide variance and less guidance.

Transportation

Transportation will provide the critical connections that define the corridor as a spine for the city. It will serve tourists

interested in a scenic view of the waterfront as well as residents going to the stadia. The light rail line should be relocated to the waterside of the development, along the existing boardwalk. This concept has been considered and rejected by the city before on the grounds that it will provide a barrier between the roadway and the boardwalk⁷. The infrequency that the trolley runs makes this concern moot. Second, the trolley is a pedestrian experience, and at its current location crossing the roadway to get to and from the waterfront creates added difficulty.

(25) The relocated transit line will connect the Space Needle to Stadia while also connecting the waterfront shelf to the city's monorail system.



The trolley can be well integrated into the boardwalk, including designed shelters at designated stops that fit the character of the area. When the rail line is extended up Broad Street towards Seattle Center, it will remain on the same side of the roadway, allowing it to open up directly onto the circular Space Needle plaza. This is the proposed termination point of the rail line, however, if future cause is shown for extension, it could easily continue up Broad Street, or veer towards Denny Way closer to the city.

At the southern end of the site the rail line should either be relocated to extend two streets to the south so that it turns in on Royal Brougham Way, or it should extend south on 5th Avenue until it hits South Jackson Street. At that point, the tracks can turn west and complete a loop that passes by Seahawk Stadium before returning to the existing tracks on Alaska Way, proceeding north (Figure 25). While this second solution would not place the rail line directly between the two ballparks, it would create a desirable return loop at

The Future of the Rose Kennedy Greenway

When Boston's Rose Kennedy Greenway is opened, the public will probably enjoy the broad open spaces it provides in one of America's densest downtown districts. However, its lack of program and single-minded approach may ultimately make it a project of public contempt. Fifteen billion dollars is a huge price to pay for any project; if it results in a passive open space that cannot be used much of the year due to the regions climate, the public will question its value.

Boston's Central Artery project has provided the first step in the process of public awareness; as a result, future projects will be beholden to its outcome, whether the project results in a spectacular public space or an intervention akin to City Hall Plaza. By focusing on other cities, understanding the projects as part of a larger typology, hopefully Boston will become more aware of the potential their current plan disregards. As of today, the elevated expressway has been removed, the land uncovered. Yet,

little expense. The extension of the rail line into this area will also help promote development by creating an attractive opportunity to develop residential units that can have the advantages of direct public transit access.

The Alaska Way is another issue that must be addressed. Should it remain? If so, which location best serves the area and its future growth? This proposal recommends that the roadway remain in its current location in a reduced capacity: one lane in each direction. It provides an

important access route, complimenting similar north-south streets such as Western and First Avenue. The roadway is vital to the commercial character of the area, but not well enough traveled to require four-lanes. Prior studies have recommended this reduction⁸. By reducing the roadway width, the traffic will be less of an imposition on pedestrians.

Street parking should be moved to the opposing eastern side of the roadway to eliminate any conflict with the trolley. Parked cars are an important part of an

over the past thirty years that this project has been in planning and under construction, planners have been unable to create an intelligent, visceral solution that the city can truly call its own.

This thesis implores the planners Boston to take charge of the opportunity and generate a real plan—one that celebrates the diversity of the city, realizes sustainability and creates new connections that once did not exist. This project will hold the richest history of the genre at its completion. Celebrate the success of removal; create new development that once could never exist in downtown Boston; realize new adjacencies that provide a new reading of the urban fabric. This task is daunting, but not unprecedented. Use past highway removal projects as lessons to inform your own design strategies. Discover the principles generated by this knowledge base and create a plan that is not going to be another albatross around the city's neck. Do not view this project in dread, but as the greatest opportunity in any one planner's professional life, or within a century's worth of a city's history.

active waterfront's character, and must be maintained despite the extra road width they require.

Cross streets at the southern part of the site can still connect to Alaska Way, creating a more regularized block structure for development to flourish, as recommended by the rubric for districts five and six. Part of this grid should be extended up into the fourth district, which is designed to house a new eclectic variety of commercial spaces.

The waterfront is also a popular destination for water taxis that travel to British Columbia, Blake Island and West Seattle. With a better-designed interface these could be well integrated into the new trolley system, and therefore into the city's public transportation network. Numerous tour and dinner boats leave from the waterfront as well. This is another added attraction that the trolley will continue to serve.

Fortunately for Seattle, much of the existing infrastructure that the site needs to operate is already in place. The relocation and extension of the existing rail line will create the necessary connections

and activate the pedestrian boardwalk. The critical purpose of the extension is to integrate the waterfront public transit system into the city network. This will make the area more accessible, increase business, and make it a popular route to see tourist attractions and sporting events. A narrower iteration of Alaska Way will continue to bring business for the retail and restaurant establishments in the wharf area, providing suitable access for new development that is created along the corridors eastern face.

Property Rights

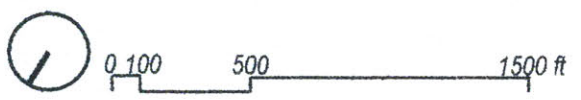
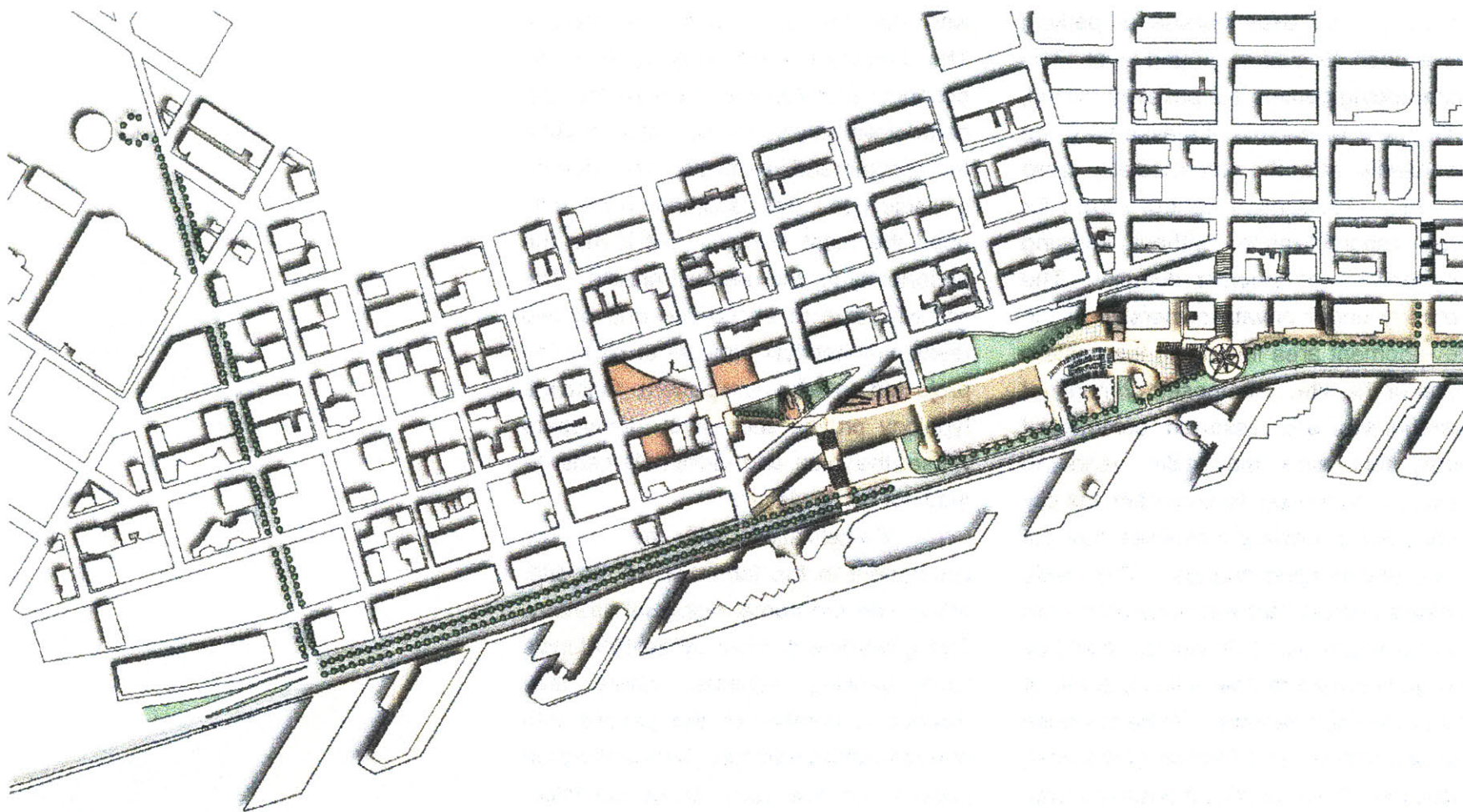
The ground on which the Alaska Way Viaduct is constructed is a transportation easement owned by the state. Although it is slightly unusual, the city has allowed the air rights under and over the existing Viaduct to be bought and developed. Specific provisions have governed this, such as clearance both above and below the structure. Not surprisingly, these clearances have only been taken advantage of through the implementation of an elevated

walkway. No uses outside of parking have been created at ground level. The surrounding parcels are privately owned, with public ownership of Alaska Way, the boardwalk and the intermediate cross streets. Government control allows for easy reparcelization, without invoking any powers of eminent domain. The property under private ownership in the development area lies along the eastern edge of the site. Composed primarily of warehouses and assorted commercial uses, this area may take years to develop. To hasten development, the city may want to provide incentives that cut costs encouraging change. The newly created parcels that are generated from the existing easements can be resold by the government to help finance some of the public improvements. While this does not begin to cover a fraction of the cost, these parcels will provide a positive image to the public and create an increased tax base that can assist in the maintenance of the open space.

Property around the southern node will require similar tactics, as many of the blocks are already occupied

with old structures and warehouses. The ballparks have already provided economic stimulation to the area; the new corridor will only add to this value, making the recommended development pattern a viable use. This southern node may need the most stimulus, but it has the opportunity for the greatest growth. The city will have to encourage one or two residential catalyst projects to begin the projected development pattern. Once the typology proves successful, developers will see the value, and additional incentives may not be necessary.

Parcelization will be a key component in the formation of the site, along with the parcel dispersal strategy. The government could utilize Portland's 'land banking' scheme, where they develop a number of the parcels into parkland until a prescribed amount of time passes and new uses can be identified. This would provide richness or texture that would be difficult to achieve through single minded development that occurs as rapidly as unfettered development may. As Portland showed, this technique needs to be tightly controlled and planned





(26) The final plan combines the seven principles to create a well connected proposal to re-envision Seattle's stagnant waterfront. By realizing this, or a similar vision, Seattle may be able to reclaim the waterfront shelf from the tourists, while maintaining its attractiveness to those from out of town with a new mix of activities that serve residents and visitors.

over time, or the parcels will forever lie vacant.

Conclusion

The final plan is a textured proposal that capitalizes on the tremendous assets of the typology and city (Figure 26). Seattle's individuality must be leveraged using the toolkit of principles laid out in this thesis, creating a successful intervention within the typology. The proposal illustrates how these core principles can generate a well-considered plan, creating a rich, vibrant part of a city. While the proposal was not comprehensive, the groundwork laid out by the principles in only a few pages can act as a guiding document to a final design solution. This is the intention of the principles, and could work for any number of the cities currently considering one of these projects.

While not substantively considered in this thesis, the question of organization and operation is essential for cities to consider when undertaking a highway removal project. Once the plan and guidelines are finalized, the city must find

a strategy to cede land rights, oversee development and provide a specialized civic face for the project. A number of cities have formed redevelopment organizations to achieve these goals. By creating this separate level of control, the city will be able to more effectively brand the project through a more transparent and accessible process than if it were handled through traditional city planning agencies that deal with all planning and design issues throughout a city. As expressed in the Park East Redevelopment project, these development organizations will be responsible for making decisions regarding how land is sold to further the goals of the project.

To ensure that Seattle achieves its goals for the future, the city should set up an Alaska Way Greenway Corporation. This organization should have offices located on site once the project has begun, allowing residents to view plans, track the progress and comment on the process. By bringing these issues into a publicly accessible forum, the city will generate enthusiasm which will eventually translate into the interest required to draw

future development. Depending on how the project proceeds, the Greenway Corporation will be capable of adjusting the dispersion of parcels in different districts to ensure appropriate growth.

Recently the city has had the San Francisco architecture firm ROMA design a scheme for the area. Their plan converts the entire site into a large open space plan consisting of bicycle and walking paths as well as roads.⁹ Other concepts of floating promenades and skate parks have been proposed, but the open space plan is the predominant scheme today.

It is easy to say that past highway removal and redevelopment projects were successful—the removal of a highway has an immediate effect on the quality of life in the surrounding area. When designed as an urban amenity, these spaces can become a city's living room. Regardless of the successes seen in various cities who have finished these projects, it is necessary to consider that there may be a better way to design these projects—they can be more successful by fostering diversity in program, use and character.

Choosing programs for these spaces is dependent on the city that they are in—what amenities does the municipality already have? How does the new space integrate itself with the rest of the urban environment and its needs?

Within the city's edge, projects have continually failed to address the complete condition. The edge is not only the walls that face the space, but control of those parcels that create the edge. While the immediate buildings may require innovative retrofitting solutions to allow them to redress themselves to the site, the future developments will be more responsible for the ultimate formation of the spaces edge. Many of the existing buildings along these edges may not last as the area gentrifies. To ensure an intelligent interface with the new project, these parcels must be reconsidered as well.

Seattle must be cognizant of these pitfalls, and the others presented in the case studies this thesis has reviewed, as well as those yet to be considered. They have an opportunity unprecedented in the city's history. The location and orientation

of the site, when juxtaposed with Seattle's most iconic elements presents a chance to unify the city along a common spine. For the first time in fifty years, the city can take full advantage of its location along the waterfront. For the engineers, politicians and planners who have authored the versions of replacement that rebuild an elevated highway in any form, they will perpetuate a legacy of ineptitude that is unparalleled. The original structures were constructed out of ignorance to natural resources, urban living and pollution. Today's government can not claim this same lack of knowledge; thus, any decision to perpetuate this intrusive form of infrastructure will be an affront to the city and its residents.

¹ *The Viaduct at a Crossroads: Dutiful Servant, Brutal Barrier*

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*

⁵ *The Seattle Central Waterfront: A study for its future comprehensive development*, p 88.

⁶ *Ibid*, p 7.

⁷ *Central Waterfront Redevelopment: Development Panel Recommendations*, p 15.

⁸ *Ibid*, p 14.

⁹ *Can the Waterfront Be Saved?*

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